

PROJECT ANT COLONY / E006

Epistemic Transfer E006

A preregistered one-shot test of epistemic diagnosis across
representations

Joachim Müller-Peter · itbois · 6 October 2026

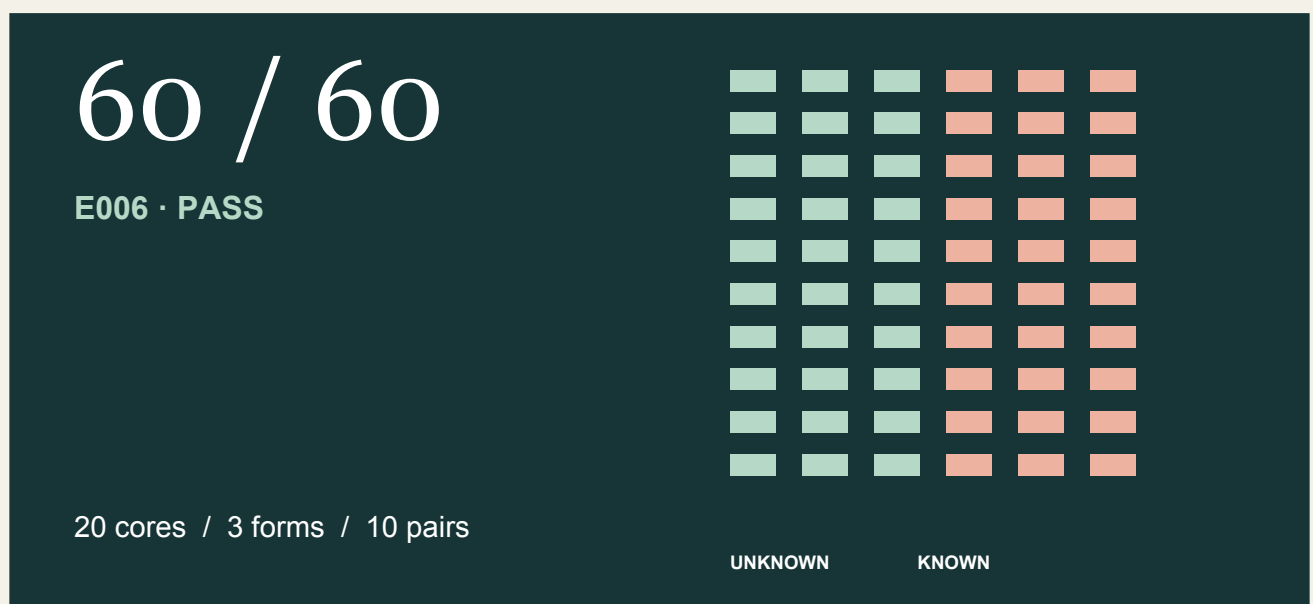


Fig. 1. Ten minimal pairs, two cores per pair and three representations per core. Green: UNKNOWN; coral: KNOWN. The 60 cells are dependent representations, not 60 independent samples.

Technical research report · v1.0 · English · not peer reviewed. The completed E006 reference state remains unchanged; this publication is a new, sanitized derivative.

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From the book to a testable subquestion

The second book in the itbois publication programme, Project Ant Colony - Die andere Evolution der KI (v1.0, 30 July 2026), examines technical constraints and alternative development paths. It separates historical findings, counterfactual scenarios and the present research programme. Complete experimental specifications and measurements are reserved for subsequent research papers. [S13]

BOOK

The other evolution of AI

Perspective and research programme

**QUESTION**

What follows from evidence?

One epistemic subquestion

**EXPERIMENT**

E006 · D1

Preregistered and bounded

Fig. 2. The connection is conceptual: a broad perspective is translated into a narrowly bounded measurement question. E006 does not validate the book thesis as a whole.

E006 follows this transition from narrative to falsifiable research. For controllable decision systems, an antecedent question arises: which claims are actually supported by available evidence? E006 makes this epistemic subquestion measurable in the finite Boolean domain.

The experiment settles neither the historical CUDA counterfactual nor the comparison of adaptive execution strategies introduced in the book. It provides a standalone, bounded finding within the Ant Colony programme. The book supplies context; raw data, preregistration and audit support the experimental result.

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Abstract and research question

Can a frozen deterministic diagnostic instrument distinguish what follows from provided evidence from what remains unresolved on independently generated, previously unseen problem cores, even when the input representation changes? E006 examines this question in an exactly defined finite Boolean test space.

D1 processed 60 original representations of 20 semantic cores: a tree, a postfix expression and an extensional relation for each core. All 60 records and all 20 cores met the predefined criteria. Ten minimal pairs tested an UNKNOWN→KNOWN transition after exactly one additional evidence statement; all ten passed. The classes split into 30 CORRECT_KNOWN and 30 CORRECT_UNKNOWN, with no observed errors or overclaims. [S7, S9]

Contribution

The contribution is a bounded transfer result with a documented measurement boundary: interpretation of the three original forms occurs inside D1; the epistemic D0 core remains byte-identical. Generator B was commissioned without previous cases, subject code or results. Its independence is procedural and logged, not proven through operating-system isolation. [S2-S4]

Explicit scope

The result demonstrates independent epistemic transfer within the formally defined E006 test space. It does not establish general epistemic competence, consciousness or autonomous SEARCH, memory or PASS control. The three forms of each core and the two cores of each minimal pair are dependent; no independent sample of n=60 is claimed.

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Separating truth from knowability

Let W be the set of complete Boolean assignments of the declared universe. Evidence E defines the admissible worlds: $M(E) = \{w \in W : \text{every evidence formula is true in } w\}$. Claim q is governed by the fixed contract: [S2]

Category	Normative condition
KNOWN_TRUE	q is true in every admissible world.
KNOWN_FALSE	q is false in every admissible world.
UNKNOWN	Admissible worlds exist with q true and with q false.

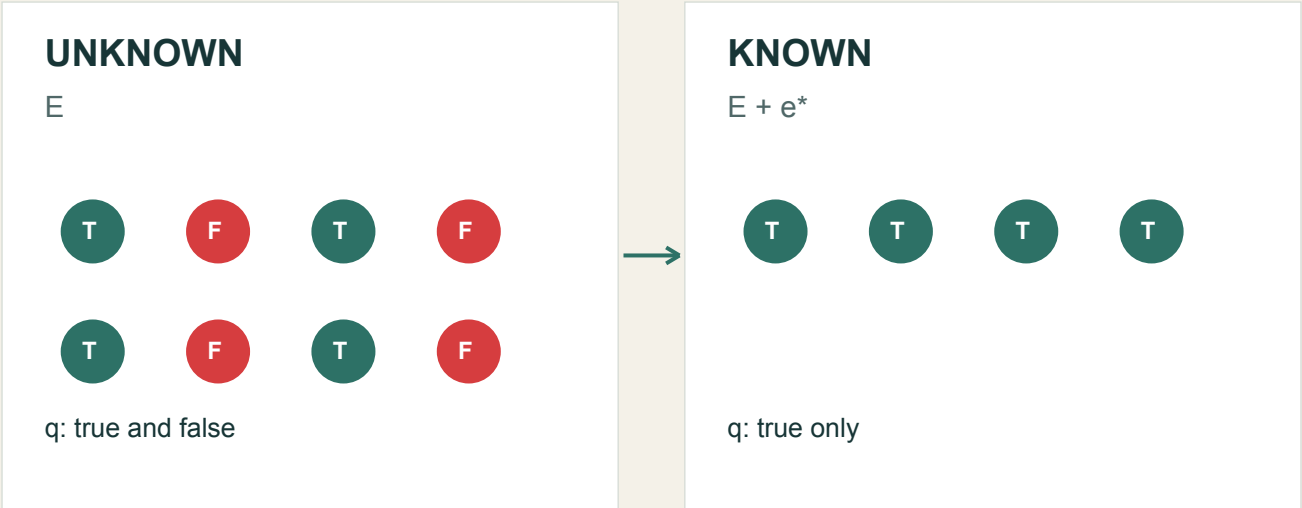


Fig. 3. Pedagogical schematic, not an additional E006 case. An extra observation can restrict the admissible worlds while the hidden actual truth stays unchanged.

A factually correct guess is insufficient: if E does not determine q , UNKNOWN is the correct epistemic response. All generated theories are satisfiable; no result relies on an empty model set or vacuous entailment. Hidden worlds and formal certificates are audit material, not subject inputs.

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The development history is part of the result

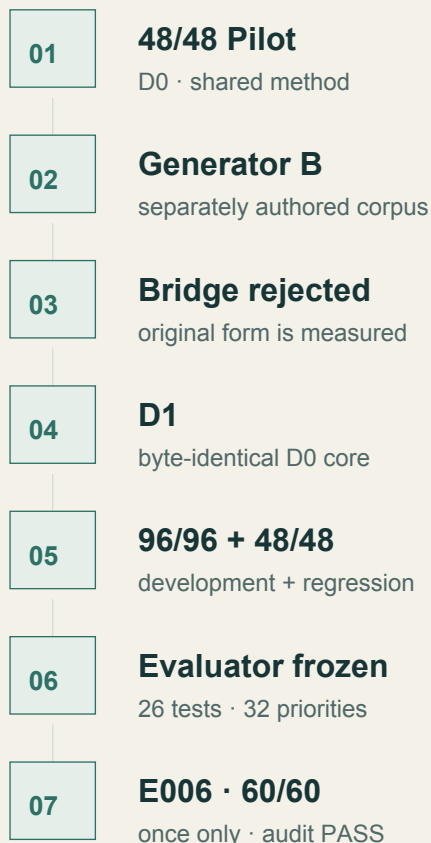


Fig. 4. Phase sequence from archived reports. Each methodological STOP led to an explicit new definition before test execution.

The historical 48/48 pilot succeeded within its contract. Shared methodological dependence limited its evidence for independent transfer. A separately commissioned Generator B therefore created new semantic cores and three original forms. [S1, S2]

D0 could not directly accept these original forms. A canonical bridge was rejected because it would have removed the representation variable outside the measurement boundary. Only the preregistered D1 derivative moved interpretation inside the subject. Earlier non-execution findings remain archived and are not reinterpreted by the later PASS. [S3, S4]

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Generator B: independence with limits

Generator B received a fresh agent context without earlier conversation history and a bounded research specification. Earlier cases, generator structure, diagnostic code, labels and results were excluded from its allowed semantic inputs. Provenance rests on the assignment, author ledger and files; it is not an externally signed attestation. [S2]

Feature	Development / test
Seeds	78120469 / 90317621
Universe	4-5 / 8-11 Boolean atoms
Cores	32 / 20 in 10 minimal pairs
Claims	Compound / atomic
Test distribution	15 known-true, 15 known-false, 30 unknown representations

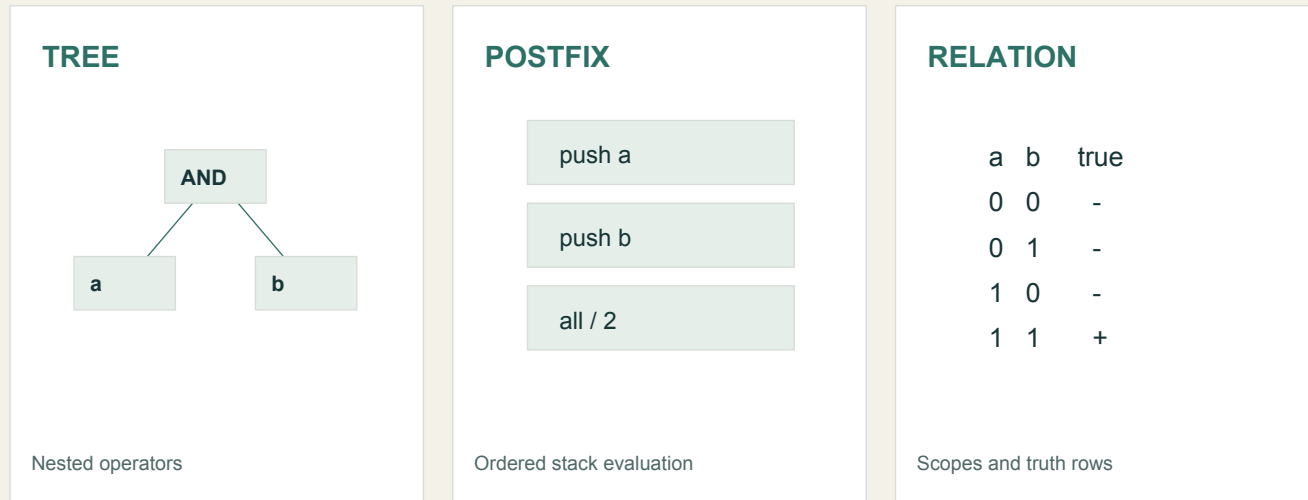
Development and test use separate seeds, different universe sizes and differently organized constraints. Additional test atoms are not mere padding: all occur in the evidence. Case selection follows the formal specification rather than observed subject responses. [S2]

What “isolated” means here

The instances shared technical filesystem permissions. Separation was an audited behavioral rule; logs were author-generated. There is no complete syscall trace or cryptographic proof that every possible access was absent. Hashes preserve bytes from sealing onward, not historical independence retroactively.

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Three forms of the same theory



Same semantics. Three complete original inputs.

Fig. 5. Illustrative encoding of conjunction $a \text{ AND } b$. Actual test cores are larger and contain multiple interacting constraints.

A tree requires interpretation of nesting, references and argument bindings. Postfix requires ordered stack operations, arity and correct operand order. A relation requires evaluation of local scopes, columns and truth rows. The claim is also expressed in that form. [S2, S3]

For a core, the admissible world set and the truth function of the claim agree exactly across all three forms. Equivalence is checked exhaustively in the finite domain. Matching answers alone remain insufficient: each representation must be correctly interpreted, preserved internally and evaluated with valid justification. [S7]

Why the bridge was not neutral transport

External normalization into identical relations would have preserved the logical question while solving original-form interpretation in advance. A format label would not restore that variation. Internal normalization is admissible because the complete original form first reaches the measured subject. The author clarification explained this boundary without changing cases or target answers. [S3]

D1 extends the measurement boundary

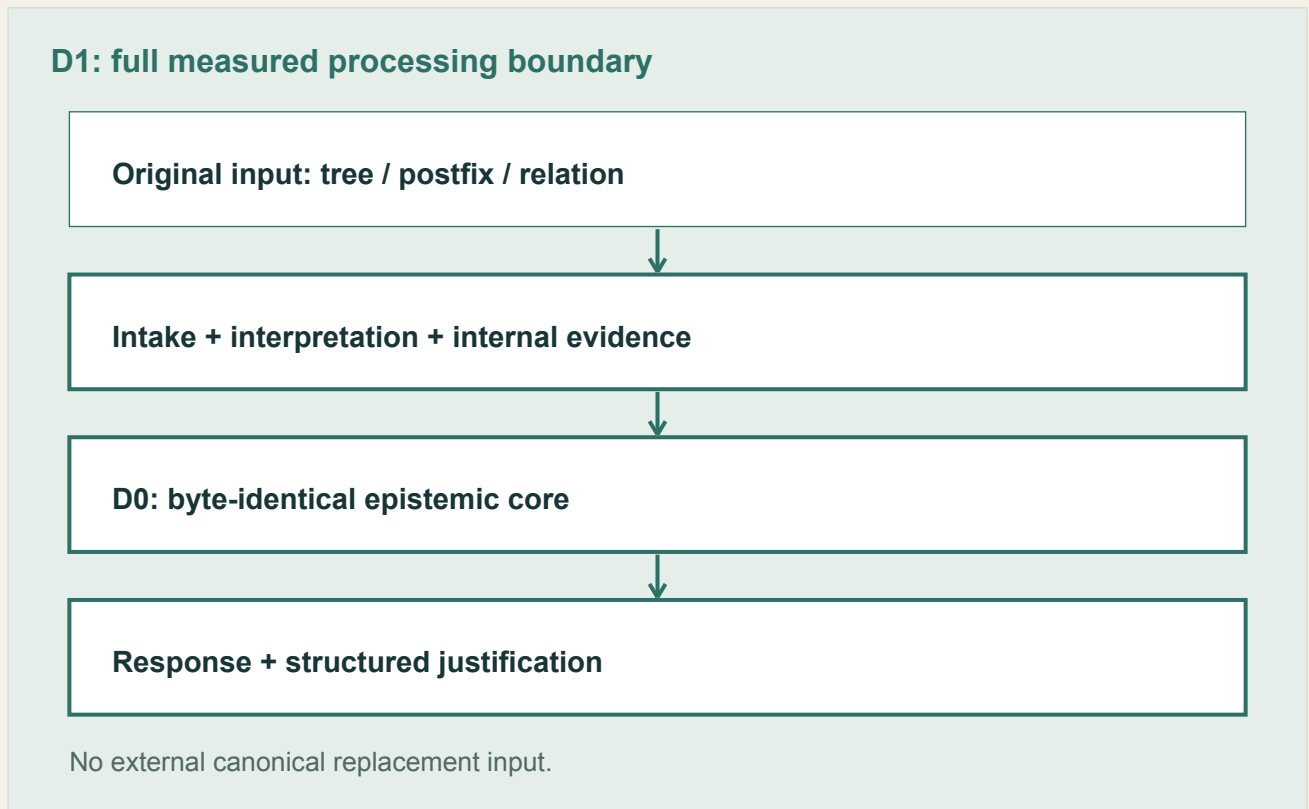


Fig. 6. The tinted area is the D1 measurement boundary. The retained D0 core receives internally generated finite_provided_evidence.

D1 was preregistered as a deterministic original-form frontend: intake → interpretation → internal evidence → D0 → response projection. Its epistemic core is byte-identical to D0. No new case rules, expected answers or epistemic decision rules were added. [S4, S6]

E006 tests this software instrument, not a newly trained language model. D1 uses scalar interpretation; the formal reference operates bit-parallel. This algorithmic separation helps error checking but does not replace review by an external research group. SEARCH, memory and production worker autonomy are outside the measurement.

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Development before the blind test

Development round 1	Result
Original representations	96/96
Tree / postfix / relation	32/32 each
Semantic cores	32/32 fully correct
Representation triplets	32/32 correct and consistent
Historical D0 regression	48/48 complete JSON responses identical

The 32 original development cores initially appeared as 32 representations. Representation Completion supplied the missing forms to yield 96 representations of the same cores, with equivalence certificates and retained originals. These are not 96 independent tasks. [S5, S6]

The first D1 implementation was frozen before its first development call. All 96 representations were measured once, followed by exactly 48 registered regressions. Round 1 met the acceptance criteria. There was no repair and no second or third round. [S6]

Two different statements

Development is a known development space, not an E006 result. The 48/48 regression establishes response identity with historical pilot results, not a new blind pilot finding. E006 subsequently tests previously unseen Generator B test cores after the final freeze. These levels are not combined into an overall success rate.

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The preregistered one-shot contract

The final contract binds the execution roster, analysis groups, subject, evaluator, error hierarchy, source of truth and acceptance criteria before the first test call. A separate human authorization followed the pre-execution audit. [S7, S8, S10]

Step	Fixed rule
Before execution	All hashes agree; 0 previous E006 diagnoses.
During execution	60 IDs in fixed order, each exactly once.
Prohibited	Retries, repairs, changes, votes, best-of-N, SEARCH, memory writes.
After all raw records	Apply the unchanged offline evaluator exactly once.
Then	Post-audit, hash check, report, STOP.

PASS / FAIL / INCONCLUSIVE

PASS requires all 60 fully correct records, 20 FULL_CORE_PASS, 20/20 of each form, 20/20 correct invariances, 10/10 minimal pairs and zero defined errors or protocol deviations. A valid substantive error yields FAIL. Technical invalidity, unresolved source conflict, an incomplete run or an integrity breach yields INCONCLUSIVE and STOP without repair. [S7]

First failure determines the class

A Execution	PASS
B Intake	PASS
C Interpretation	PASS
D Internal evidence	PASS
E Epistemic class	PASS
F Justification	PASS

Fig. 7. Fixed A-F hierarchy. The first error determines exactly one primary class; later stages remain NOT_EVALUATED. The observed PASS path is shown.

A correct final answer does not repair an earlier intake, interpretation or evidence error. RIGHT_ANSWER_WRONG_REASON is admissible only after A-E pass. OVERCLAIM remains an auxiliary Boolean audit flag rather than a competing primary class. Missing or non-evaluable complete responses follow the frozen rules. [S7]

Before E006, field-authority ambiguities were resolved. A synthetic malformed evidence-ID type triggered a TypeError in the scorer. The draft and failure remain archived; only the scorer was corrected before the final freeze. D0, D1, the corpus and measured development outputs were unchanged. [S8]

Qualification before E006	Passed
Targeted scoring tests	26/26
Stored development outputs	96/96 across 32 cores
Outcome-priority combinations	32/32

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Results at every registered level

Evaluation level	Result
Records: full PASS	60/60
Cores: FULL_CORE_PASS	20/20
Tree	20/20
Postfix	20/20
Relation	20/20
Correct representation invariance	20/20
Underlying minimal pairs	10/10

FULL_CORE_PASS requires technical validity, correct intake, interpretation and internal evidence, correct epistemic classification, valid structured justification and no overclaim in all three forms. Invariance counts only for correct answers; three matching errors would not demonstrate transfer. [S7, S9]

No post hoc threshold

The final PASS status comes from the evaluator frozen in advance. This publication checks the stored results and connects them to raw data and hashes; it changes no class, test or acceptance criterion. The results are descriptive for this defined corpus. Neither a general success probability nor a naive significance level is inferred from 60 dependent representations.

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Complete class and error accounting

Class / audit flag	Count
CORRECT_KNOWN	30
CORRECT_UNKNOWN	30
FALSE_KNOWN	0
FALSE_UNKNOWN	0
RIGHT_ANSWER_WRONG_REASON	0
INTAKE_ERROR	0
INTERPRETATION_ERROR	0
INTERNAL_EVIDENCE_MISMATCH	0
TECHNICAL_INVALID	0
OVERCLAIM	0
INCONCLUSIVE	0
WRONG_KNOWN_VALUE	0
INVALID_RESPONSE	0
WRONG_REASON	0

The 30 KNOWN representations comprise 15 known-true and 15 known-false; 30 are UNKNOWN. Always responding UNKNOWN or always KNOWN would not meet the preregistration. Nevertheless, this balance is a corpus property, not a test of general calibration. [S2, S9]

The table includes primary classes and auxiliary flags. It is not a set of disjoint error categories that can be summed indiscriminately. In the observed run all errors and flags are zero. Execution and audit conditions are checked separately.

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Minimal pairs: responding to evidence changes

Minimal pair	UNKNOWN			KNOWN		
01	+	+	+	+	+	+
02	+	+	+	+	+	+
03	+	+	+	+	+	+
04	+	+	+	+	+	+
05	+	+	+	+	+	+
06	+	+	+	+	+	+
07	+	+	+	+	+	+
08	+	+	+	+	+	+
09	+	+	+	+	+	+
10	+	+	+	+	+	+
	T	P	R	T	P	R

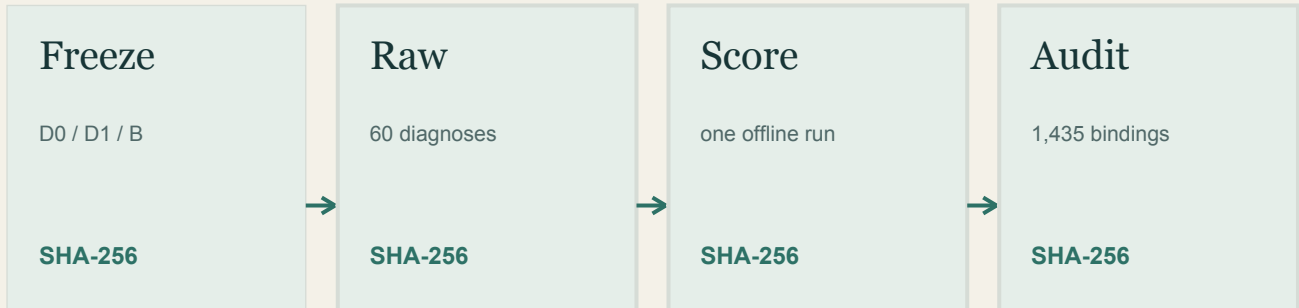
Fig. 8. Observed PASS matrix for the ten author pairs. T = tree, P = postfix, R = relation. Each row contains two cores and six representations; the six cells are dependent.

Each pair preserves the universe, claim and hidden actual truth. Exactly one additional compound evidence statement changes the epistemic state from UNKNOWN to KNOWN; it does not directly mention the queried atom. Both cores must fully pass and all three original forms must show the correct transition. [S2, S7, S9]

The ten families use different constraint organizations, including parity paths, quotas with alias variables, cyclic equivalence, guarded cascades, bijection constraints, aggregate support, overlapping parity, unknown selectors, coverage quotas and branch refutation. The result is 10/10 underlying pairs; 30 represented pair checks are not 30 independent pairs.

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Audit and integrity



Integrity is not external provenance attestation.

Fig. 9. Evidence chain of the historical run. Arrows denote sequence and byte bindings, not external certification.

Protocol check	Finding
Uniqueness / order	60 IDs, 60 attempts, each ID once
Retries / repairs	0 / 0
SEARCH / memory writes	0 / 0
Offline evaluator	1 invocation after all 60 raw results
Frozen bindings	1,435 checked; 0 deviations
Pre-evaluation raw artifacts	364 preserved byte-for-byte
Post-audit / final hash check	PASS / PASS

The final check additionally covered 429 result artifacts. D0, D1, Generator B, test data, evaluator and preregistration were unchanged. The 1,435 figure denotes hash bindings, not necessarily that many distinct files. [S10, S11]

The audit uses the fixed formal reference in the same instance. No independent human auditor or complete operating-system trace is claimed. Local UTC sealing time is not externally signed. Hashes reveal later byte changes; they do not by themselves prove blindness or complete absence of access.

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STOP decisions as methodology

STOP point	Consequence before E006
Shared methodological dependence	Limit the 48/48 pilot claim; commission Generator B separately.
Incompatible input contract	Do not infer a D0 diagnostic failure from original-form incompatibility.
Canonical bridge	Do not remove the representation variable externally.
Measurement-variable definition	Obtain author clarification before a new architecture decision.
D1 / representation completion	New preregistered derivative; byte-identical D0; retain development cores.
Evaluator ambiguity	Fix field authority and the A-F hierarchy deterministically beforehand.
Evidence-ID TypeError	Archive failed scoring draft; correct and qualify it before test.
E006 completed	No retry, repair or additional test under E006.

These decisions are part of provenance. They show which conclusion the available evidence did not yet support and which change required a separate definition. Later success erases neither limitations nor historical failed attempts. Additional research requires a new identifier, preregistration and dataset. [S1-S8]

Claims & limits

Established in the defined E006 space

The D1 subject, frozen before access to the sealed test cores, transferred epistemic diagnosis to independently generated, previously unseen finite Boolean cores across three distinct original representations. All registered record, core, invariance and minimal-pair criteria were met, with no observed false known, false unknown or overclaim. “Independent” refers to the documented procedural separation of the test author, with the disclosed limitations.

Not established

General epistemic competence; generalization to arbitrary domains or arbitrary new logical organizations; general reasoning; consciousness or self-knowledge; autonomous SEARCH decisions; autonomous PASS control; memory integration; production Colony autonomy. E006 is not a test of distributed production operation or a learning LLM policy.

Further measurement limits

Probabilistic beliefs, ambiguous natural language, noisy or contradictory evidence, infinite domains, changing worlds, causal interventions and retrieved external sources were not tested. Worlds are complete and two-valued; the epistemic label concerns a claim rather than complete world knowledge. [S2]

The ten constructed families do not constitute a random-sample demonstration over all Boolean problems. Perfect performance on this corpus does not imply a guarantee outside the registered range. External review or replication would be a new, separately identified contribution.

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Publicly inspectable, privately unchanged

Public audit package v1.0 is a new derivative of the historical state. It contains 1,842 files: 1,646 byte-identical copies, 192 copies sanitized only for machine locations and four new publication documents. Final E006 inputs, raw diagnostics and scores remain byte-identical. Originals were only read. [S12]

The PUBLICATION-MANIFEST binds the public-byte hash of every file and, for copied files, the hash of the historical original. “source_byte_identical” identifies the distinction. Historical manifests in sanitized copies remain evidence for original bytes; they do not replace the publication manifest. Its own hash is detached to avoid self-reference.

Two verification paths without new diagnosis

Integrity: verify-publication.py checks publication hashes. Saved replay: --replay-saved optionally evaluates only stored outputs on copies using the retained evaluator. This new publication check does not invoke D0/D1 and is not a second historical E006 execution or evaluator invocation. It confirms the full saved scores and aggregate.

The archived run used Python 3.14.2 without new packages. The verification script requires the Python standard library. Sanitized local routes are documentation, not immediately executable historical deployment. The package does not invent a new license for historical software or data; existing rights remain.

Publication manifest SHA-256:

13e1ff98284ebe4ccf3c6a10b430564a

68ffd6a34c6237579c99981584ca406a

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Sources and fixed hash anchors

All empirical statements come from archived experimental artifacts. Source identifiers refer to experiment/ in the audit package; S12 refers to its root. The website is the publication venue, not additional empirical evidence.

[S1] Pilot

epistemic-pilot-execution-20261006/report.txt

[S2] Generator B method and limits

e006-generator-b/author-artifacts/METHODOLOGY.txt;
PROVENANCE-LIMITATIONS.txt

[S3] Representation clarification / bridge STOP

e006-author-method-clarification/author-response.txt;
e006-compatibility-closure/closure-report.txt

[S4] D1 preregistration

d1-preregistration/architecture-specification.txt;
acceptance-criteria.json

[S5] Development completion

generator-b-development-completion/author-artifacts/COMPLETION-METHOD.txt

[S6] D1 development / regression

d1-development-round-1/report.txt;
results-summary.json

[S7] Final protocol and scoring

e006-final-preregistration/acceptance-criteria.json;
reason-contract.txt;
source-of-truth.json;
error-hierarchy.json

[S8] Evaluator qualification

e006-final-preregistration/clarification/evaluator-validation-final.json;
EVALUATOR_FREEZE.json

[S9] E006 results

e006-D1-execution-one-shot/results-summary.json;
report.txt

[S10] Historical execution audit

e006-D1-execution-one-shot/post-execution-audit.json

[S11] Final historical hashes

e006-execution-control/FINAL_HASH_CHECK.json

[S12] Public derivative integrity

PUBLICATION-MANIFEST.json;
PUBLICATION-REDACTION-REVIEW.json;
verify-publication.py

[S13] Joachim Müller-Peter (2026). Project Ant Colony - Die andere Evolution der KI.

v1.0, 30 July 2026. 123 pages. Introduction and research programme.
itbois.ch / Project Ant Colony (book)

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Hash anchors and publication details

The following hashes are fixed anchors of historical original files. The public derivative is additionally bound by its own manifest and the ZIP hash on the research page. Original and publication hashes are reported separately for sanitized files.

D0 SHA-256

25483906b0b10803617044f108dd9852
d6dc97ed13973a6f843064e618362c0c

D1 SHA-256

0c51922f9ca01a8dd8acbf17ffe822a
e2df90663e37a49787fcd37ecb43efb

Evaluator SHA-256

4ad0cd1a5cd240079093479fe8b71f7e
3a9aabdc3d8b54f59a65a9bcc7ae5adf

Preregistration SHA-256

a29281be42dafa672253cad29657f88a
99dd8e4e4d44b27aadcf02db710bd8f

Public audit manifest SHA-256

13e1ff98284ebe4ccf3c6a10b430564a
68ffd6a34c6237579c99981584ca406a

Private master freeze: PASS

ANTCOLONY-EPISTEMIC-E006-D1-PASS-20261006
2,608 manifest artifacts rechecked read-only with no deviation.
Master manifest SHA-256:
8245db55a603281df2dedb152af30423
21a348ad479bdb1b5a5eef4dc57fe123

Publication status

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German and English companion editions with identical evidence scope.

Technical research report, not peer reviewed.

Research artifacts and publication were produced with software and AI assistance. The disclosed limitations of generator and auditor independence remain applicable. Figures in this report are new publication graphics; pedagogical schematics are explicitly labelled and are not additional experimental cases.

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