

Rethinking TRIZ for AI-Driven Narrative Generation









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Outline

-  **TRIZ × Narratology**
Common ground: *contradiction* as engine of invention and story
-  **Narrative Contradiction Matrix**
24 parameters, 40 devices, and the 24×24 matrix
-  **RDF-Star Ontological Representation**
Formal encoding enabling SPARQL-based narrative rule retrieval
-  **Human-in-the-Loop Workflow**
7-step TRIZ protocol for structured creative problem-solving
-  **Agentic Deployment: ArchiveMyLegacy**
Proactive TRIZ agent monitoring narrative health in the AML pipeline
-  **Concluding Remarks**
Future experimental programme

The TRIZ Framework

Theory of Inventive Problem Solving

Genrich Altshuller · Developed from 1940s onward · Systematic analysis of **400,000+ patents** across diverse engineering fields

Contradictions

Technical: improving one parameter degrades another.

Physical: a single parameter must satisfy two incompatible requirements. Identifying the active contradiction is the first and most critical step.

40 Inventive Principles

High-level solution strategies (Segmentation, Inversion, Dynamics, Preliminary Action...) that recur across domains. They operate at a level of abstraction that enables cross-domain analogical transfer.

39 × 39 Contradiction Matrix

Rows = parameter to improve, **Columns** = parameter that worsens. Each cell contains two principles most frequently effective for that trade-off in the patent corpus.

ARIZ Algorithm

An elaborate analytical procedure for complex cases where the matrix provides insufficient guidance, plus patterns of technical system evolution (toward dynamism, micro-level, etc.).

Function Analysis & Substance-Field Models

Graphical tools for modelling functional interactions between components identifying harmful, insufficient, or excessive interactions at the root of the design problem.

Key insight: TRIZ transforms creative problem-solving from intuition to methodology, which is precisely what makes it attractive for computational applications.

Why TRIZ × Narratology?



TRIZ (Engineering)

- **Contradictions** drive all inventive problems
- **40 Inventive Principles** distilled from 400K+ patents
- **39×39 Contradiction Matrix** maps problem → solution strategies



Narratology

- **Conflict** is the generative core of story
- Both fields revolve around **structured tension**
- Existing TRIZxNarratology work is **limited & pre-LLM**

Contributions



Narrative Contradiction Matrix

24x24 matrix mapping parameter trade-offs to 40 narrative devices, grounded in classical narratological theory



RDF-Star Ontology

Formal knowledge representation enabling SPARQL-based narrative rule retrieval and cross-parameter reasoning



Human-in-the-Loop Workflow

7-step TRIZ protocol for structured creative problem-solving, positioning the LLM as dramaturgical consultant



Proactive Agentic Architecture

ArchiveMyLegacy deployment: TRIZ-agent monitors narrative health and intervenes before contradictions become failures

24 Narrative Parameters

Six dimensions covering the full narrative design space

Plot (1–6)

Narrative Pace, Plot Complexity, Causal Clarity, Suspense/Tension, Resolution, Timeline

World & Setting (17–18)

World-building, Thematic Coherence

Character (7–12)

Depth, Agency, Believability, Relatability, Transformation, Consistency

Reader Engagement (19–22)

Emotional Eng., Intellectual Eng., Accessibility, Memorability

Information Management (13–16)

Inf. Density, Historical Coherence, Clarity, Surprise

Communicative (23–24)

Educational Value, Entertainment Value

40 Narrative Devices (Selection)

Each device is theoretically grounded in classical narratological sources

1. Mistaken Identity

Aristotle

13. Chekhov's Gun

McKee

35. Ironic Outcome

Booth

6. Sacrificial Choice

Campbell

20. Temporal Displacement

Genette

39. Cathartic Release

Aristotle

9. Ticking Clock

McKee

28. Historical Witness

Genette

40. Echo Effect

Chatman

10. Sudden Reversal

Aristotle

33. Moral Dilemma

Booth

14. Interrupted Journey

Campbell

The Narrative Contradiction Matrix

Improves ↓ / Worsens →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1. Narrative Pace	—	9, 14	13, 4	16, 9	39, 5	15, 2	6, 3	6, 37	2, 37	32, 13	3, 17	6, 25	15, 32	28, 4	7, 32	26, 5	17, 18	34, 13	6, 39	11, 26	7, 9	9, 39	7, 28	5, 16	
2. Plot Complexity	15, 4	—	13, 4	23, 26	25, 24	15, 20	3, 8	9, 12	4, 8	8, 21	3, 17	5, 35	15, 24	28, 15	25, 16	26, 19	17, 37	34, 15	39, 30	31, 30	13, 9	34, 35	28, 14	16, 16	
3. Causal Clarity	2, 9	2, 29	—	27, 31	25, 13	6, 28	8, 7	4, 37	4, 7	30, 2	3, 17	4, 25	4, 29	28, 29	7, 26	27, 26	19, 21	34, 37	38, 39	31, 30	7, 30	13, 4	28, 27	16, 1	
4. Suspense/Tension	27, 15	18, 15	9, 13	—	39, 2	20, 25	32, 26	12, 5	27, 18	23, 25	3, 17	35, 25	26, 11	28, 29	2, 32	26, 16	18, 34	34, 18	39, 32	35, 27	13, 32	35, 39	28, 12	5, 16	
5. Resolution	38, 9	38, 15	38, 2	26, 16	—	38, 29	6, 37	12, 5	37, 25	39, 21	39, 17	38, 34	30, 15	29, 28	2, 7	26, 38	19, 24	34, 25	39, 38	35, 31	2, 25	35, 38	38, 30	5, 16	
6. Timeline	20, 9	29, 14	29, 30	29, 15, 9	20, 39	—	20, 6	37, 20	20, 29	21, 29	17, 4	25, 29	30, 15	20, 4	13, 19	20, 27	20, 19	34, 37	39, 6	20, 37	7, 2	20, 34	29, 30	9, 15	
7. Char. Depth	8, 9	6, 15	33, 34	23, 25	8, 15	—	8, 12	21, 37	21, 37	21, 6	3, 17	29, 34	30, 32	28, 6	7, 2	26, 5	19, 21	37, 34	6, 39	31, 35	7, 2	39, 34	6, 7	5, 8	
8. Char. Agency	9, 14	6, 8	6, 13	3, 9	25, 24	6, 15	6, 37	—	37, 6	21, 8	3, 17	37, 34	11, 13	12, 29	7, 17	5, 26	6, 19	37, 34	6, 39	37, 31	3, 9	12, 34	6, 30	6, 5	
9. Char. Believab.	8, 32	21, 15	21, 13	21, 9	2, 29	21, 15	29, 6	21, 3	—	8, 21	3, 4	35, 25	7, 30	28, 21	7, 30	2, 31	19, 29	37, 34	39, 6	31, 30	7, 2	34, 35	7, 29	1, 5	
10. Char. Relatab.	21, 6	6, 12	21, 7	21, 9	2, 38	6, 20	8, 37	6, 3	7, 29	—	3, 38	34, 25	30, 29	20, 21	7, 21	2, 21	21, 19	21, 37	39, 6	35, 27	21, 2	34, 21	21, 30	21, 5	
11. Char. Transform.	6, 9	6, 12	4, 7	6, 9	3, 38	3, 20	6, 37	12, 5	2, 25	17, 21	—	34, 25	11, 30	20, 28	7, 17	17, 5	17, 19	37, 34	3, 38	3, 35	17, 7	39, 34	17, 30	3, 5	
12. Char. Consistency	29, 9	25, 15	29, 7	29, 9	25, 39	37, 20	7, 25	25, 6	37, 21	29, 21	17, 2	—	30, 29	28, 19	7, 29	35, 26	19, 29	37, 34	38, 39	35, 31	2, 7	25, 34	30, 29	5, 35	
13. Info. Density	30, 9	30, 14	30, 7	30, 9	15, 38	32, 20	15, 6	30, 6	15, 21	7, 21	17, 3	15, 25	—	29, 30	15, 13	27, 32	17, 19	34, 29	6, 32	31, 30	7, 21	11, 34	30, 29	1, 32	
14. Historical Coh.	29, 9	30, 15	30, 13	30, 9	30, 38	28, 15	29, 8	28, 6	29, 7	28, 6	17, 19	29, 25	28, 15	—	7, 30	26, 11	19, 37	39, 6	30, 37	7, 21	19, 34	30, 21	26, 1		
15. Clarity	2, 9	7, 14	2, 13	7, 9	38, 26	30, 30	30, 6	2, 6	2, 21	2, 6	2, 3	2, 25	30, 7	2, 28	—	32, 2	17, 21	34, 7	2, 7	2, 30	7, 25	7, 2	30, 15	32, 2	
16. Surprise	16, 9	5, 15	5, 13	5, 9	5, 39	26, 15	16, 6	16, 6	26, 21	26, 6	26, 3	5, 25	11, 26	5, 28	26, 7	—	18, 23	35, 25	39, 5	35, 31	2, 26	35, 11	26, 27	1, 1	
17. World-building	19, 9	18, 15	18, 13	19, 9	18, 15	18, 15	18, 6	18, 3	21, 7	18, 6	18, 3	18, 25	30, 29	28, 29	19, 7	19, 26	—	34, 19	19, 39	18, 23	7, 21	19, 17	19, 28	19, 18	
18. Thematic Coh.	37, 9	25, 15	13, 25	35, 25	37, 38	25, 20	25, 6	25, 6	25, 21	34, 6	25, 3	25, 29	37, 30	25, 28	37, 2	34, 26	37, 18	—	34, 39	31, 35	21, 19	34, 35	34, 29	1, 35	
19. Emotional Eng.	38, 9	6, 14	6, 13	6, 9	6, 2	38, 20	38, 8	38, 3	38, 21	38, 21	39, 17	6, 25	11, 26	28, 4	39, 30	6, 26	6, 18	6, 37	—	35, 31	2, 39	39, 34	29, 30	5, 16	
20. Intellectual Eng.	31, 9	35, 15	35, 13	31, 9	27, 38	31, 15	27, 6	35, 6	35, 21	31, 21	31, 17	27, 25	35, 15	31, 28	31, 7	27, 26	21, 19	34, 37	27, 39	—	21, 15	35, 34	21, 30	27, 1	
21. Accessibility	2, 15	7, 15	2, 13	7, 9	7, 38	17, 20	17, 6	7, 6	17, 21	7, 6	2, 3	17, 25	2, 30	2, 28	2, 30	7, 5	2, 19	34, 7	7, 6	7, 31	—	34, 39	7, 30	1, 2	
22. Memorability	34, 15	39, 15	34, 2	34, 9	39, 38	39, 15	35, 6	39, 6	39, 21	39, 6	3, 17	39, 29	39, 30	39, 28	34, 30	34, 26	34, 18	34, 37	39, 31	35, 6	39, 31	35, 7	—	29, 34	1, 5
23. Educ. Value	30, 9	30, 15	30, 13	30, 9	29, 39	21, 20	30, 8	29, 3	21, 30	29, 6	29, 3	21, 25	21, 15	29, 28	29, 7	30, 5	30, 18	30, 37	6, 39	29, 31	29, 2	30, 39	—	1, 18	
24. Entertainment	1, 9	5, 15	5, 13	1, 9	1, 38	5, 20	16, 6	16, 3	16, 21	16, 6	16, 17	16, 25	5, 30	5, 28	5, 7	26, 16	5, 23	5, 34	1, 39	5, 31	5, 7	34, 35	5, 30	—	

The Narrative Contradiction Matrix

How It Works

Rows = parameter to improve

Columns = parameter that worsens

Each cell contains indices of narrative devices (from the 40-device table) that can mediate the specific trade-off.

$24 \times 24 = 552$ non-diagonal cells,
each with 2 recommended devices.

Reading Example

Row 1 (Narrative Pace) × **Col 2** (Plot Complexity)

→ **Devices: (9) Ticking Clock, (14) Interrupted Journey**

"When improving Narrative Pace risks degrading Plot Complexity, these devices are recommended mediators. the Ticking Clock sustains pace while preserving complexity through urgency; the Interrupted Journey introduces sub-plots that re-inject complexity without disrupting rhythm."

RDF-Star Ontological Representation

Schema Formalization and RDF-Star Encoding

$P = \{p_1 \dots p_{24}\}$ Narrative Parameters

$D = \{d_1 \dots d_{40}\}$ Narrative Devices

$R = \{\text{improves, worsens, SolvedbyMeansOf}\}$

$C \subseteq P \times R \times P$ (Narrative Compounds)

$NR \subseteq C \times 2^D$ (Narrative Rules)

```
<< :NarrativePace
  :worsens
  :PlotComplexity >>
  :SolvedByMeansOf :TickingClock ;
  :SolvedByMeansOf :InterruptedJourney .
```

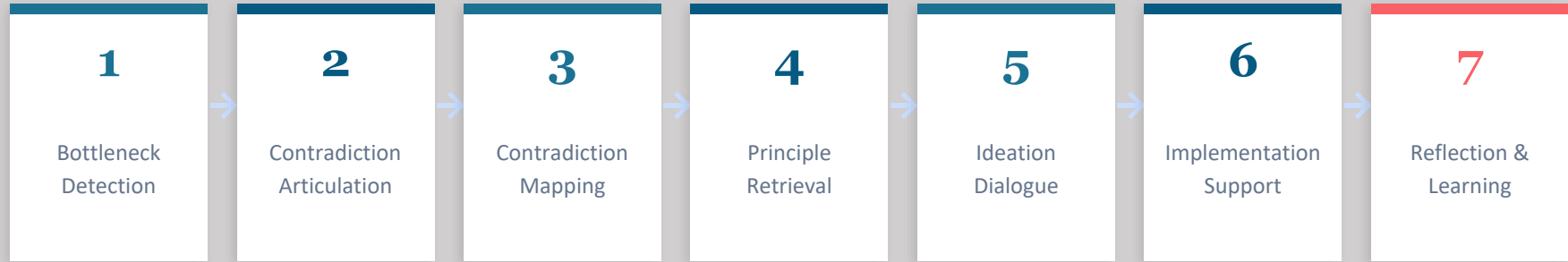
SPARQL query example

```
SELECT ?device WHERE {
  << :NarrativePace
    :worsens
    :PlotComplexity >>
    :SolvedByMeansOf ?device .
}
```

While elementary queries could be answered by direct matrix consultation, the expressive capacity of this schema extends well beyond simple lookups: one could query for all devices that mediate a specific parameter across multiple trade-off directions, or perform a reverse look-up (“given this device, which contradictions can it resolve?”) particularly useful in story diagnosis.

Human-in-the-Loop Workflow

LLM as dramaturgical consultant — preserving human creative agency



↻ *Cycle repeats as new bottlenecks emerge*

Example

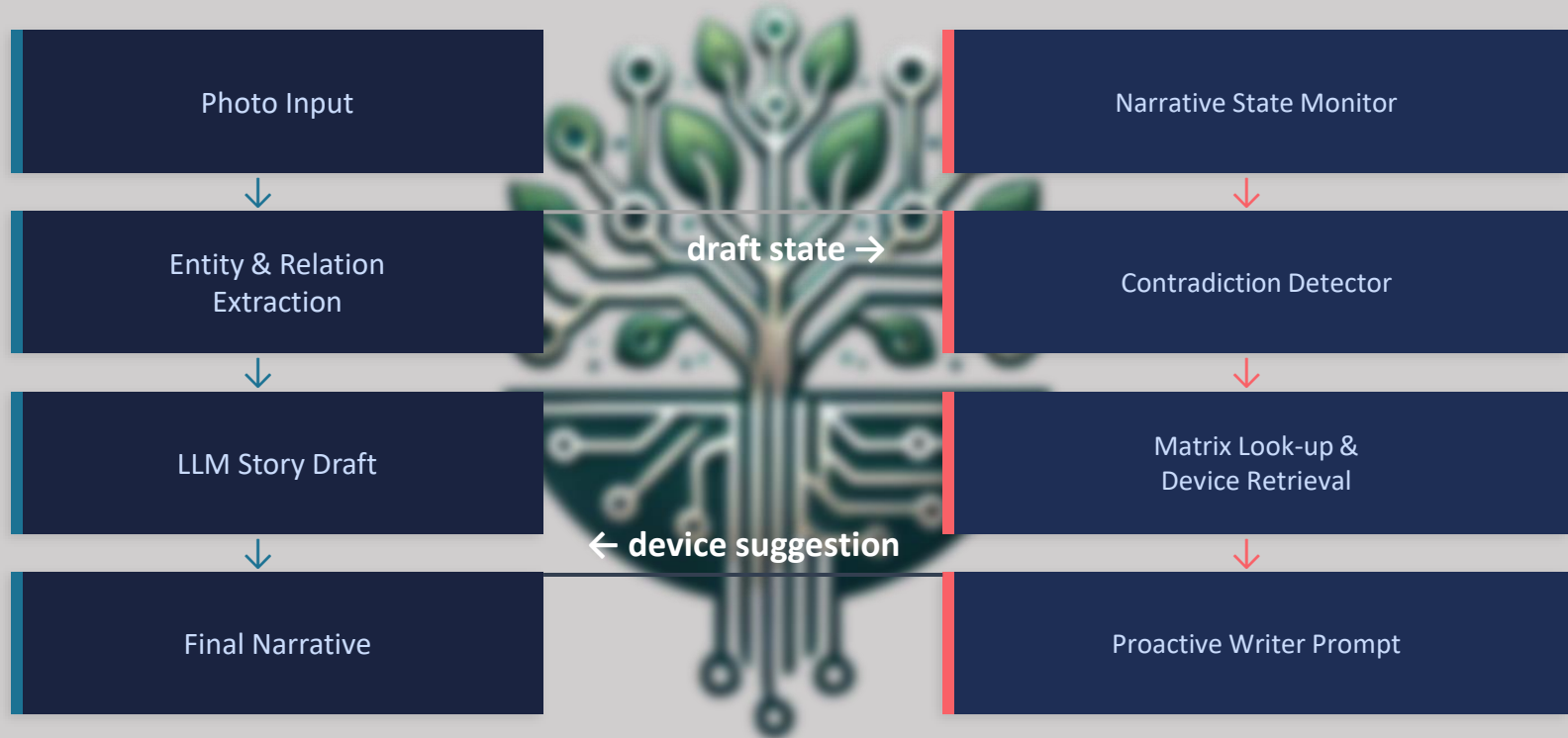
Writer: "I need backstory for stakes, but it kills pacing."

System maps: improving Suspense (p.4) worsens Pace (p.1) → Cell (4,1) = devices (9, 10)

→ *Ticking Clock* and *Sudden Reversal* suggested as mediators.

Proactive TRIZ Agent: ArchiveMyLegacy

Inverting the collaboration: the agent monitors narrative health and advises the writer



Domain: biographical narratives from photos — constrained by real events yet requiring dramaturgical shape.

Proactive TRIZ Agent: ArchiveMyLegacy

Example Agent Intervention



Scenario: Historical Coherence (p.14) compresses Narrative Pace (p.1)

*"The current draft allocates significant space to historical context (**param. 14: Historical Coherence is high**), which is beginning to compress **Narrative Pace (param. 1)**. Table 3 cell (14, 1) suggests devices (**28: Historical Witness**) or (**4: Fateful Encounter**) as mediators. Would you like the system to introduce a scene in which a family member narrates the historical context through a personal encounter, thus embedding exposition in action?"*

Proactive TRIZ Agent: ArchiveMyLegacy

Experimental Sketch & Narrator Development

Experiment Design

Within-subjects, 3 conditions, N = 30

C0 No TRIZ layer

C1 One TRIZ device suggestion per session

C2 Full proactive agent (all 24 parameters)

3 raters blind to condition · 5 criteria · 1–5 Likert

Reliability: Krippendorff's α

Expected Outcomes

Inventiveness & Memorability — significant improvement C0 → C2

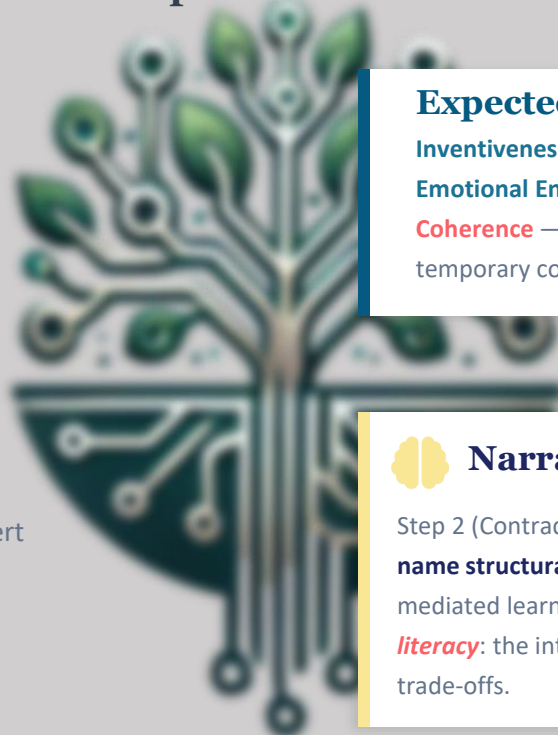
Emotional Engagement — smaller positive effect

Coherence — possible non-monotonic dip (C1 > C0; C2 may show temporary complexity overhead = learning curve)



Narrator Skill Development

Step 2 (Contradiction Articulation) requires the writer to **explicitly name structural tensions**, a metalinguistic act grounded in Vygotskian mediated learning. Repeated use may develop **structural narrative literacy**: the internalized ability to perceive and manipulate narrative trade-offs.



Concluding Remarks



TRIZ fills the LLM gap

LLMs lack explicit reasoning about contradictions and trade-offs. TRIZ provides exactly this structured, transparent problem-solving layer.



Multi-scale applicability

From resolving micro-level dramatic contradictions within scenes, to generating synopses and discovering novel plot architectures at the macro level.



Narrative dramaturg

The proactive agent inverts human–AI collaboration: the AI monitors narrative health and intervenes before dysfunction becomes apparent.



Beyond the artifact

TRIZ-assisted co-writing may function as a vehicle for narrative education — developing structural literacy in writers through repeated use.



Thank you for your attention

Questions?

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