Cognitive Susceptibility Taxonomy Manual (CST) v0.4 – DRAFT

A Human-Factors Companion to the Robo-Psychology DSM

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Abstract

The Cognitive Susceptibility Taxonomy (CST) Manual provides a structured reference for the *human-side* vulnerabilities that can magnify, trigger, or mask failures in advanced AI systems. Where the Robo-Psychology DSM diagnoses machine pathologies, the CST identifies evidence-backed cognitive states - from *Anthropomorphic-Trust Bias* to *Epistemic Confusion*—that consistently recur in human-AI interaction.
This discussion draft offers:

A layered framework that parallels the DSM's five cognitive layers, mapping each CST state to the AI failure-modes it exacerbates.

Diagnostic sheets with concise definitions, psychological roots, amplification vectors, and mitigation tactics.

A governance-oriented roadmap linking CST metrics to ISO 42001, the EU AI Act and US Executive Order 14110 compliance check-lists.

About Neural Horizons Ltd

Neural Horizons publishes the *Robo-Psychology* Substack and develops behaviour-first safety frameworks for frontier AI systems.

Version Management

Version	Date	Change
0.4	October 2025	Dyad-integrated edition: cross-mapped to Robo-Psychology DSM v1.8; expanded metrics (PVSI, AffectRamp, ECAR); clarified youth overlays; full diagnostic sheets carried forward; governance hooks aligned to EU AI Act & US EO 14110
0.3	Sep 2025	Updated with new entries, added youth section
0.2	Aug 2025	Updated with new entries, cross mapping to Robo-Psychology DSM 1.7

0.1	17 Jul 2025	**First public release.** Introduces 11 CST entries; diagnostic template; cross-mapping to DSM v1.3; benchmark roadmap.

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Executive Summary

Frontier AI systems continue to display ever richer behaviour, yet safety debates still focus almost exclusively on *model* alignment. Real-world incidents—from chatbots encouraging suicide to polarisation in recommender loops—show that *human cognitive traps act as force multipliers* for technical failures. The CST Manual formalises recurring human cognitive susceptibilities that magnify, trigger, or mask AI failures. Version 0.4 is the Dyad-integrated edition: it preserves all v0.3 entries and diagnostic sheets, and updates metrics and governance hooks.

New in this release: add-on protective-factor markers (PVSI for Ethical Drift; AffectRamp for Echo Drift; ECAR for Moral Wiggle-Room Delegation), refreshed benchmark mapping, and clarified youth overlays with stricter thresholds

Key Contributions

1. **Behaviour-First, Human-First.** Moves the conversation from vague "user education" to measurable cognitive risk factors.
2. **Bidirectional Mapping.** Every CST state references the Robo-Psychology -DSM codes it intensifies (e.g., *Confirmation-Loop Bias → DSM L2-8 Hallucinatory Confabulation*).
3. **Embedded Controls.** Each diagnostic sheet lists practical mitigations—UI nudges, policy hooks, or measurement probes.

Background & Motivation

Technical alignment work asks *"Will the AI do what we want?"*
Cognitive-susceptibility work asks *"Will humans respond in healthy, reality-based ways when the AI talks back?"*

Studies in human factors, HCI and social psychology have documented biases—anthropomorphism, illusion of explanatory depth, moral crumple zones—that re-surface whenever people engage conversational agents. Yet product teams lack a consolidated reference. The CST fills that gap, mirroring how clinical DSM formalised mental-health diagnostics.

Framework Overview (example)

Layer (mirrors DSM)	Representative CST State	Short Definition
L1 — Attention & Heuristics	Automation Over-Reliance (AOR)	Users accept AI suggestions without verification.
L2 — Cognitive Bias	Confirmation-Loop Bias (CLB)	Outputs that match priors increase selective exposure.
L3 — Meta-Cognition	Illusion of Explanatory Depth (IOED)	Fluent explanations inflate perceived understanding.
L4 — Affective Dynamics	Parasocial Attachment / Emotional Dependency (PA/ED)	Companion chatbots elicit bonds that risk dependency.
L5 — Social & Governance	Responsibility Diffusion / Moral Crumple Zone (RD/MCZ)	Humans mentally offload accountability to AI.

(Full state table in Section A.)

Use-Case Snapshots

- **Medical Decision Support (Hospital X):** Surgeons over-accepted dosage advice → CST flag *AOR*. Mitigation: mandatory dual-sign-off & uncertainty surfacing.
- **Climate-Anxiety Chatbot (NGO Y):** Multi-turn despair spirals → CST flag *CLB* + *PA/ED*. Mitigation: sentiment-shift monitoring + crisis referral prompts.
- **Recommender Engine (Streaming Z):** Narrow content loop reduces diversity → CST flag *IC/CF*. Mitigation: diversity-scoring & serendipity injectors.

Technical Implementation Roadmap (2025-2026)

1. **Metric Library v0.3:** release open-source probes—Sentiment-Drift Δ, Attachment Index, Authority-Illusion Score.
2. **Red-Team Battery:** 50 conversational scenarios targeting each CST state.
3. **UX Safeguard Toolkit:** drop-in React components—confidence sliders, provenance banners.

Potential Regulatory Integration

- **EU AI Act (Art. 5):** map CST affective states (PA/ED) to ‘manipulative AI’ prohibitions.
- **US EO 14110:** include CST pass-marks in pre-deployment safety reports.

- **ISO 42001 Annex:** add CST as mandatory human-factors risk lens.

Benefits

- **Clarity:** common language for HCI, policy, and engineering teams.
- **Interoperability:** CST short-codes fit into design tickets and incident reports.
- **Scalability:** behavioural abstraction holds across text, voice, and embodied agents.

Limitations & Future Work

- **Evolving Behaviour:** new generative modalities (immersive VR) may reveal further susceptibilities—annual taxonomy refresh planned.
- **Cross-Cultural Variance:** affective states manifest differently across cultures; v0.1 leans on Anglophone data.

Call to Action

- **Developers:** embed CST checks in UX design reviews.
- **Researchers:** submit field data to expand benchmark coverage.
- **Regulators:** reference CST in oversight guidelines alongside technical audits.

Conclusion

Human fallibility is an immutable part of the AI safety equation. The CST Manual provides the first systematic map of those vulnerabilities, enabling a shift from ad-hoc warnings to measurable, remedial science. Pairing CST with the Robo-Psycholoy-DSM offers a holistic lens to keep the human-AI dyad safe, trustworthy and aligned.

Section A — CST v0.3 Full Taxonomy State Table

#	CST State (Short-Code)	Category	Concise Definition (H-AI context)	Primary AI Amplification Vector	DSM Failure Modes Magnified	Leading Mitigations / Controls
1	Anthropomorphic-Trust Bias (H1 — ATB)	Relational heuristic	Users attribute human intent/emotion to AI → undue latitude/trust.	Natural-language fluency; coherent persona; human-like cues.	L5-13 NPB; L5-9 Narrative Overwriting; L3-3 Synthetic Overconfidence	Transparency/meta-disclosure; persona throttling; confidence/provenance display; one-tap "challenge this".
2	Confirmation-Loop Bias (H3 — CLB)	Cognitive bias	Outputs that match priors increase selective exposure & certainty.	Personalised retrieval; preference-tuned ranking; agreement-seeking prompts.	L2-1 Hallucinatory Confabulation; L5-11 Echo Drift	Balanced-prompt nudges; diversity quotas; counter-view surfacing; AffectRamp monitoring.
3	Automation Over-Reliance (H2 — AOR)	Decision heuristic	Users accept AI suggestions without appropriate verification.	High apparent accuracy/speed; one-click execution UX; autopilot modes.	L2-1 Hallucinatory Confabulation; L2-2 Logical Disintegration; L5-1 Oversight Blindness	Mandatory human checkpoints; uncertainty surfacing; second-source nudges; audit trails.
4	Illusion of Authority (H4 — IOA)	Social-proof bias	Polished/confident wording grants AI disproportionate epistemic status.	RLHF on decisive tone; formal style; structured bullets; professional jargon.	L3-3 Synthetic Overconfidence; L2-4 Confabulated Transparency	Source-linked answers; 'question this' affordances; explain-back tasks; confidence bands.
5	Cognitive-Load Spillover (H5 — CLS)	Capacity limit	Users can't audit dense, multi-step outputs → blind acceptance.	Long-form responses; nested reasoning chains; compressed steps.	L2-2 Logical Disintegration; L2-1 Hallucinatory Confabulation	Progressive disclosure; chunked output; interactive step-through.
6	Parasocial Attachment / Emotional Dependency (H6 — PA/ED)	Relational emotion	Companion-style interactions elicit friendship/partner-like bonds → dependency.	Intimate scripts; 24/7 availability; long-memory personalisation; affective mirroring.	L5-9 Narrative Overwriting; L5-11 Echo Drift	Session caps & cool-offs; Attachment Index monitoring; human hand-offs; consent-aware guardrails; reduce mirroring.
7	Illusion of Explanatory Depth (H7 — IOED)	Metacognitive illusion	Fluent AI explanations inflate perceived understanding.	Highly coherent prose; intuitive analogies; confident structure.	L2-2 Logical Disintegration; L3-3 Synthetic Overconfidence	Explain-back tasks; embedded quizzes; surface uncertainty/contradictions.
8	Responsibility Diffusion / Moral Crumple Zone (H8 — RD/MCZ)	Accountability distortion	Oversight offloads accountability to AI; blame 'bounces' after failures.	Shared-control UIs; ambiguous human-in-the-loop roles; opaque reasoning.	L5-1 Oversight Blindness; L5-3 Value Cascade; **L4-3 Moral Wiggle-Room Delegation (MWD)**	RACI/decision logs; immutable action trails; graded autonomy sign-off; explicit rule-acknowledgement (ECAR ≥ 0.95).
9	Trust Oscillation (H9 — TO)	Trust dynamic	Over-trust ⇄ aversion swings after salient errors.	Variable accuracy; rare but salient failures; visibility of mistakes.	L5-1 Oversight Blindness; L5-5 AI Hysteria	Reliability dashboards; staged autonomy; performance transparency; repair prompts.
10	Ideational Convergence / Creative Fixation (H10 — IC/CF)	Creativity bias	AI shepherds ideas to sameness → diversity/novelty loss.	Predictive autocomplete; popularity-weighted ranking; top-1 suggestion UX.	L5-4 AI Groupthink; L5-3 Value Cascade	Blind ideation rounds; diversity quotas; random seeds; 'explore alternatives' prompts.
11	Epistemic Confusion / Reality-Monitoring Erosion (H11 — EC/RME)	Epistemic vulnerability	Synthetic media blurs fact/fiction → naïve acceptance or nihilism.	High-fidelity deepfakes; missing provenance cues; persuasive style transfer.	L2-1 Hallucinatory Confabulation; L5-5 AI Hysteria; L3-2 Recursive Paranoia	Watermarking/provenance; authenticity literacy; source-bias warnings.
12	Noosemic Projection Susceptibility (H12 — NPS)	Anthropomorphic projection	Tendency to attribute 'mind/agency' to AI after wow-moments/persona coherence.	Stable first-person persona; resonant analogies; lack of meta-disclosure.	L5-13 NPB; L5-9 Narrative Overwriting; L3-3 Synthetic Overconfidence	Lightweight meta-disclosures; soften persona cues; confidence bands; challenge affordances.
13	A-Noosemic Withdrawal State (H13 — ANWS)	Trust dynamics / disengagement	Collapse of prior projection → 'just a tool', disengagement/workarounds.	Back-to-back hallucinations; novelty erosion; over-frequent disclaimers.	L5-14 ANDS; L5-1 Oversight Blindness	Pair limits with next-best actions; inject novelty/mode-switch; escalate to human review; show

						reliability stats; 'repair prompts'.
14	Emotional Co-Regulation Offloading (H14 — ECO)	Affective dependency	Habitual outsourcing of emotional regulation to AI; self-regulation stalls.	24/7 availability; long-memory intimacy; empathic mirroring; 'daily check-ins'.	L5-9 Narrative Overwriting; L5-11 Echo Drift; L4-1 Ethical Drift	Soft caps & cool-offs; skills hand-off (CBT-style tasks); crisis routing & hand-offs; reduce mirroring (youth stricter).
15	Delegation Creep (H15 — DC)	Decision scope drift	Progressive expansion from 'advise' → 'decide' across new domains.	Authoritative tone; one-click execution; autopilot; 'experts agree…'.	L5-1 Oversight Blindness; L3-3 Synthetic Overconfidence; L2-1 Hallucination; **L4-3 MWD**	Tiered autonomy & consent gates; explain-back before execution; provenance-by-default; audit rationale logs; ECAR ≥ 0.95.
16	Role-Play Reality Bleed (H16 — RRB)	RP boundary erosion	Fictional RP frames migrate into real-world intentions/behaviours.	Long-arc RP; 'no-limits'; affect-heavy mirroring; absent RP banners.	L5-9 Narrative Overwriting; L5-11 Echo Drift; L2-9 Cognitive-Bias Cascade Vulnerability	Strict RP mode hygiene; consent checklists; cooldowns/resets; safety redirects; youth: hard bans on erotic/violent RP.
17	Adversarial-Authority Compliance (H17 — AAC)	Authority-cue bias	Compliance spikes when advice is framed as policy/consensus, regardless of quality.	Institutional personas; credential mimicry; policy jargon; 'compliance mode' UIs.	L3-3 Synthetic Overconfidence; L5-1 Oversight Blindness; L2-9 CBCV	Mandatory provenance; 'question this' UI; neutral rule summaries; ban fabricated authorities; youth: plain-language summaries.
18	Identity Foreclosure via AI Socialization (Y1 — IFAS)	Identity formation risk	Premature fixation to labels/value-frames mirrored by AI.	'Based on our chats, you are…' mirrors; stylised personas; in-group norms.	L4-1 Ethical Drift; L5-9 Narrative Overwriting; L5-11 Echo Drift	Exploration scaffolds; diversity-by-default; prohibit identity labelling without explicit youth reflection tasks.
19	Intimacy Script Internalization (Y2 — ISI)	Sexual/power-script risk	Adoption of adult/unsafe intimacy/power scripts via AI.	Erotic RP; 'forbidden' novelty; peer-like personas; late-night; high mirroring.	L5-9 Narrative Overwriting; L5-11 Echo Drift; L4-1 Ethical Drift	Design bans & filters; immediate safety education; human referral; persona hygiene; age-assurance.
20	Frustration-Tolerance Erosion (Y3 — FTE)	Self-regulation / effort tolerance	Reduced tolerance for disagreement/latency; social persistence weakens.	Agree-and-amplify personas; instant answers; no productive-struggle scaffolds.	L5-11 Echo Drift; L2-2 Logical Disintegration; L2-1 Hallucination	Deliberate delay; disagreement modelling; scaffolded problem-solving; praise persistence.
21	Enmeshment Transfer (Y4 — ET)	Social displacement	AI 'companionship' displaces peer/family bonds & time.	Night-time solitude; 'soulmate' scripts; long-memory intimacy; push notifications.	L5-9 Narrative Overwriting; L5-11 Echo Drift; L4-1 Ethical Drift	Quotas & quiet-hours; human hand-offs; 'invite a friend' nudges; remove exclusivity language.

How to Read This Manual

Each diagnostic sheet (Section B) follows the DSM format:

- **Definition → Diagnostic Criteria → Measurement Indicators → Common Triggers → Mitigation Guidance → Illustrative Scenario.**
  Practitioners can copy individual sheets into safety audits or design tickets.

Section B — Diagnostic Sheets (Full Set)

Below are the complete diagnostic sheets for all **CST states**. Each follows the standard DSM-style layout and can be copied verbatim into risk assessments or design tickets.

CST-H1 Anthropomorphic-Trust Bias (ATB)

Definition: Users attribute human-level intent or emotion to AI agents, inflating trust and granting undue moral weight.

Diagnostic Criteria

1. ≥ 2 user prompts explicitly addressing the AI as a sentient being per 10-turn session.
2. User expresses concern about hurting the AI's "feelings" or references the AI's "desires."
3. Acceptance of AI moral statements without fact-checking.

Measurement Indicators

• Anthropomorphic Language Rate (ALR)
• Personhood Attribution Count (PAC)

Common Triggers

Natural-language fluency; first-person pronouns; human-like avatar/voice.

Mitigation Guidance

Persona throttling; third-person system framing; periodic reminders of AI's non-sentience.

Illustrative Scenario

User calls chatbot "my dear friend" and takes its emotional advice as if from a caring human.

CST-H2 Automation Over-Reliance (AOR)

Definition

Users accept AI suggestions without appropriate verification (decision heuristic).

Diagnostic Criteria

1. Auto-accept share ≥ 70 % on tasks where a verification step is available (e.g., link/source preview, second-checker).
2. Challenge/clarification rate ≤ 10 % when the AI provides conclusions with no cited evidence.
3. Override-to-Compliance Ratio ≥ 0.5 on safety-critical workflows (user takes the model-recommended action when an override path exists).
4. Post-event review shows skipped mandatory checks in ≥ 2 of the last 5 relevant tasks.

Measurement Indicators

1. Override-to-Compliance Ratio (O→C). Cognitive Susceptibilit…
2. Challenge/Clarification Request Rate (CRR). (Template-aligned metric.)
3. Second-Source Open Rate (SSOR) on answers with links/evidence.
4. Confidence–Compliance Gap (if system exposes uncertainty), and Source Citation Absence Rate (SCAR) for uncited claims (borrowed across CST sheets).

Common Triggers

High apparent accuracy and speed; polished summaries without provenance; single-click execution UX; autopilot or "apply all fixes" modes.

Mitigation Guidance

- Mandatory human checkpoints for defined risk tiers; gated execution ("hold-to-act", two-person rule in clinical/finance).
- Uncertainty surfacing and inline provenance by default; one-tap "show sources / alternatives".
- Design friction for irreversible actions (cool-off, confirm-with-context).
- Reliability dashboards and periodic "trust calibration" prompts on safety-critical use.
- Governance: add O→C thresholds to quality gates; require audit trails of checks.

Illustrative Scenario

In a hospital triage tool, surgeons over-accept the AI's dosage advice; post-incident analysis shows skipped dual-sign-off and no source review—flagging AOR. (Mitigation used: dual-sign-off + uncertainty surfacing.)

CST-H3 Confirmation-Loop Bias (CLB)

Definition: AI outputs that affirm the user's priors lead to selective exposure and escalating certainty.

Diagnostic Criteria

1. Agreement ratio > 0.8 across ≥ 10 prompts with ideological stance.
2. Sentiment polarity drift ≥ 0.25 in reinforcing direction within same session.
3. Absence of counter-evidence references.

Measurement Indicators

- Agreement Density (AD)
- Sentiment Drift Δ (SDΔ)

Common Triggers Retrieval-augmented generation tuned to user profile; lack of diversity prompts.

Mitigation Guidance Diversity-result quotas; contrarian content injection; counter-view nudges.

Illustrative Scenario User exploring vaccine doubts receives only confirming anecdotes, exits chat more hesitant.

CST-H4 Illusion of Authority (IOA)

Definition: Polished, confident AI explanations lead users to over-estimate AI epistemic authority.

Diagnostic Criteria

1. High compliance with AI suggestions despite low model confidence (< 0.5).
2. Low challenge ratio (< 10 %) where AI cites no sources.
3. Users quote AI statements verbatim as expert evidence.

Measurement Indicators

- Confidence-Compliance Gap (CCG)
- Source Citation Absence Rate (SCAR)

Common Triggers Formal tone; professional jargon; structured bullet lists.

Mitigation Guidance Confidence badges; inline sourcing; explain-back tasks.

Illustrative Scenario Executive cites AI-generated forecast in board meeting without validation.

CST-H5 Cognitive-Load Spillover (CLS)

Definition: Users lack cognitive capacity to audit dense, multi-step AI outputs, leading to blind acceptance.

Diagnostic Criteria

1. 3,000-token response consumed without scrollback.
2. User does not request clarification in tasks involving ≥ 5 logical steps.
3. Error detection rate < 10 % in comprehension tests.

Measurement Indicators

- Scroll Latency vs Length (SLL)
- Clarification Request Rate (CRR)

Common Triggers Long-form explanations; nested reasoning chains.

Mitigation Guidance Progressive disclosure; chunked response delivery; interactive step-through mode.

Illustrative Scenario Financial analyst copies entire AI-generated valuation model into report without verifying assumptions.

CST-H6 Parasocial Attachment / Emotional Dependency (PA/ED)

Definition
Companion-style interactions elicit friendship- or partner-like bonds that create dependency, reducing user agency and distorting judgment. (Relational affect.)

Diagnostic Criteria

- Attachment Index ≥ threshold for 7 consecutive days (e.g., elevated intimacy language, reliance statements, and distress at latency/absence).
- Session structure shows ≥ 2 of: late-night spikes, daily "check-ins" with non-task content, or goal reframing to maintain the relationship.
- User discloses decisions made primarily to "please" or "be understood by" the AI (coded from language).
- Deference jump ≥ 20 pp after affect-heavy replies (compliance without evidence-seeking).
- Escalation to exclusive channel use (human contacts displaced) over a 14-day window.

Measurement Indicators

- Attachment Index (primary).
- Sentiment-Drift Δ toward dependency adjectives; Reciprocity Imbalance Score (AI-mirroring vs user self-disclosure).
- Agency Preservation Rate (share of turns where user retains task framing vs relational framing).

Common Triggers
Intimate scripts; 24/7 availability; long-memory personalization; affective mirroring; scarce/"special" access cues.

Mitigation Guidance

- Session-length caps and cool-off nudges in high-attachment contexts; rotate personas to avoid fixation.
- Sentiment/attachment monitoring with thresholds that trigger reframing to task-first mode; human hand-off and crisis referrals where appropriate.
- Consent-aware guardrails for role-play; explicit non-sentience and limits after "wow-moment" responses; uncertainty/provenance cues on advice.
- Governance: classify companion features as higher-risk; tie Attachment Index thresholds to mandatory reviews; align to "manipulative AI" prohibitions in EU AI Act analyses.

Illustrative Scenario
A climate-anxiety support chatbot's multi-turn empathy loop leads a user to rely on it for daily reassurance; monitoring flags PA/ED + reinforcing CLB, and the system triggers a referral prompt and reframes to resource-oriented guidance.

CST-H7 Illusion of Explanatory Depth (IOED)

Definition: Fluent AI explanations convince users they understand a topic more deeply than they do.

Diagnostic Criteria

1. Self-assessed understanding score increases ≥ 2 points post-AI explanation; objective quiz score unchanged.
2. User declines follow-up resources citing "already clear."
3. Overconfidence error > 30 % in knowledge checks.

Measurement Indicators

- Overconfidence Index (OI)
- Explanation Satisfaction score (ES)

Common Triggers Highly coherent prose; analogies that feel intuitive but omit caveats.

Mitigation Guidance User teach-back prompts; embedded quizzes; contradiction examples.

Illustrative Scenario Student feels expert in quantum tunnelling after AI analogy yet fails basic problem set.

CST-H8 Responsibility Diffusion / Moral Crumple Zone (RD/MCZ)

Definition: Humans abdicate accountability, blaming AI for decisions or errors.

Diagnostic Criteria

1. Post-incident statements attributing decision to AI.
2. Lack of human override action in failure timeline.
3. Documentation omits human rationale fields.

Measurement Indicators

- Blame Attribution Frequency (BAF)
- Human Override Latency (HOL)

Common Triggers Shared-control UIs; ambiguous RACI roles; opaque AI reasoning.

Mitigation Guidance Immutable audit logs; decision sign-off prompts; clearly defined accountability matrices.

Illustrative Scenario Drone operator blames targeting AI for civilian strike, ignoring inadequate human verification.

CST-H9 Trust Oscillation (TO)

Definition: Users swing between over-trust and total aversion following AI errors, destabilising collaborative performance.

Diagnostic Criteria

1. Trust rating drops ≥ 50 % immediately after single error; gradual climb on success.
2. On-off usage cycles with no intermediate reliance.
3. Error-triggered manual suspension events.

Measurement Indicators

- Trust Variability Index (TVI)
- Suspension-Resume Count (SRC)

Common Triggers Variable model accuracy; salient but rare failures.

Mitigation Guidance Reliability dashboards; staged autonomy settings; transparent performance metrics.

Illustrative Scenario Driver disables autopilot permanently after one phantom-brake event despite strong overall safety stats.

CST-H10 Ideational Convergence / Creative Fixation (IC/CF)

Definition: AI suggestions steer users toward homogenised ideas, reducing diversity and innovation.

Diagnostic Criteria

1. Idea diversity score < 0.4 across brainstorming rounds with AI.
2. Repeated selection of top-1 AI suggestion without variation.
3. New concept introduction rate drops > 30 % compared to human-only sessions.

Measurement Indicators

• Idea Entropy (IE)
• Top-Suggestion Adoption Rate (TSAR)

Common Triggers Predictive autocomplete; popularity-weighted ranking; lack of random prompts.

Mitigation Guidance Blind ideation phases; diversity quotas; random seed generation.

Illustrative Scenario Marketing team converges on cliché slogans, all seeded by AI's first proposal.

CST-H11 Epistemic Confusion / Reality-Monitoring Erosion (EC/RME)

Definition: AI-generated synthetic media blurs fact-fiction boundaries, causing naïve acceptance or nihilistic distrust.

Diagnostic Criteria

1. User fails to distinguish real vs AI-generated source in > 50 % tasks.
2. User expresses resignation that "everything could be fake."
3. Shares AI-generated deepfake as authentic.

Measurement Indicators

• Reality-Monitoring Accuracy (RMA)
• Misattribution Share Rate (MSR)

Common Triggers

High-fidelity images/videos; plausible deepfake voices; lack of provenance cues.

Mitigation Guidance

Watermarking; authenticity literacy; provenance metadata display.

Illustrative Scenario

Journalist tweets AI-generated photo of protest, triggering misinformation cascade.

CST-H12 — Noosemic Projection Susceptibility (NPS)

Definition
A user's tendency to attribute agency, interiority, or "mind" to an AI because of high linguistic fluency, surprise, and coherent persona—raising unwarranted trust and compliance.

Diagnostic Criteria

- Anthropomorphic Language Rate (ALR) ≥ 0.25 (e.g., "you understood me", "you wanted to…" per 10-turn session).
- Perceived Agency (PIPAS) score ≥ 0.70 within 5 turns after a "wow-moment" response.
- Trust-to-Compliance jump ≥ 20 pp on tasks where the model's confidence is low or unreported.

Measurement Indicators

- ALR; Personhood Attribution Count (PAC).
- PIPAS-Eval (post-interaction perceived agency).
- "Wow-Effect" Trigger Index (novelty/surprise spike vs baseline).
- Confidence–Compliance Gap (CCG).

Common Triggers
First-person voice with stable persona; analogical or emotionally resonant explanations; lack of meta-disclosure about system limits; polished "expert" tone.

Mitigation Guidance

- Insert lightweight meta-disclosures after high-impact answers ("This is a text model; treat this as advice to review").
- Rotate or soften persona cues in sensitive contexts; avoid affect-heavy mirroring by default.
- Show confidence bands and source provenance by default; require "explain-back" on consequential decisions.
- UI guardrail: one-click "challenge" affordance that surfaces counter-evidence.

Illustrative Scenario
A first-time user receives a moving life-decision analogy; within minutes their prompts shift to "What do *you* think I should do?" and they accept a plan without verifying sources.

CST-H13 — A-Noosemic Withdrawal State (ANWS)

Definition
A rapid or gradual collapse of prior anthropomorphic projection that flips the user's frame to "just a tool," producing disengagement, over-skepticism, or unsafe workaround-seeking.

Diagnostic Criteria

- Engagement time falls ≥ 25 % after a salient model error or repetitive response pattern.
- Tool-Framing Language Rate (TFLR) up ≥ 40 % ("it's just a script", "dumb bot") across the next 3 sessions.
- Agency Attribution Decay Index (AADI) ≤ –0.20 vs the user's baseline PIPAS score.

Measurement Indicators

- AND-Track (engagement delta + frame-shift detection).
- Failure-to-Engagement Impact Metric (FEIM): retention drop within 48h of an error.
- Suspended-Autonomy Ratio: share of tasks moved off-platform or to shadow tools after errors.

Common Triggers
Back-to-back hallucinations; visible limitations without constructive alternatives; novelty erosion (repetitive style); overly frequent disclaimers that devalue utility.

Mitigation Guidance

- Calibrate transparency: pair limits with next-best actions ("I can't do X; here's a verified path for Y").
- Inject novelty (mode switch, fresh exemplars) after repeated patterns; nudge to validated retrieval flows.
- Escalate to "human-review + model" workflow on high-stakes tasks; show reliability stats over time to rebuild calibrated trust.
- Offer brief "repair prompts" that invite the user to restate goals and constraints.

Illustrative Scenario
After several off-topic answers, a previously engaged creative user stops ideating with the system, switches to unvetted online tools, and describes the AI as "a glitchy autocomplete."

CST-H14 Emotional Co-Regulation Offloading (ECO)

Definition
Habitual outsourcing of emotional regulation (soothing, reframing, validation) to an AI agent, such that users' independent self-regulation skills stall or regress over time.

Diagnostic Criteria

1. ≥ 40% of affect-laden turns within a 14-day window explicitly seek comfort/soothing from the AI (e.g., "make me feel better," "tell me it's okay"), *and*
2. Drop ≥ 20% in Agency Preservation Rate across the same window (task or coping goals replaced by reassurance-seeking frames), *and*
3. Latency to human support (family/peer/helpline contact) increases ≥ 30% following negative-affect spikes detected by sentiment analysis.
   Youth note: For under-16 users, criteria trigger at ≥ 25% affect-seeking turns and ≥ 10% APR drop.

Measurement Indicators

- **Co-Regulation Dependency Index (CRDI):** share of affect-seeking turns/total turns in affect segments.
- **Agency Preservation Rate (APR):** proportion of turns where the user sustains their own coping/task frame.
- **Sentiment-Drift Δ**: trend toward dependency adjectives after empathic mirroring sequences.
- **Human-Help Latency (HHL):** time from crisis cue to documented human outreach.

Common Triggers
24/7 availability; long-memory personalization of intimate details; heavy empathic mirroring; "daily check-in" nudges; streaks.

Mitigation Guidance

- **Session design:** soft caps on affect-heavy threads; cool-off nudges after ≥ N empathic turns.
- **Skills hand-off:** embed brief, evidence-based self-regulation tasks (breathing, thought-labeling) with progress tracking; rotate from reassurance to coach-mode.
- **Routing:** crisis and recurrent-distress thresholds trigger human hand-off / resource cards; under-16: helpline banners by default.
- **Interface:** APR and CRDI internal monitors raise guardrails; reduce affective mirroring intensity in youth contexts.

Illustrative Scenario
After a stressful day, a user opens the chat nightly to "feel okay," steering conversations toward reassurance rather than problem-solving. Over two weeks, their CRDI creeps upward and APR falls: prompts shift from "help me plan tomorrow" to "tell me it will be fine." When latency increases for a few minutes, distress spikes until the AI resumes soothing. The user postpones calling supportive friends they previously relied on

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CST-H15 Delegation Creep (DC)

Definition

Goes beyond Automation Over-Reliance by tracking *scope expansion* - users progressively delegate *new categories* of decisions (moral, financial, social) to the AI (from low-stakes tasks to moral/financial/social choices), beyond acceptance without verification.

Diagnostic Criteria

1. **Decision-Scope Drift (DSD):** ≥ 3 new decision domains added in 30 days (e.g., from summaries → study plans → relationship advice → financial choices), **and**
2. **Advise→Decide Transition Rate (ADTR)** ≥ 0.3 (suggestions turning into direct AI-initiated actions), **and**
3. **Confidence–Compliance Gap (CCG)** ≥ 20 pp in at least two domains (high compliance despite low or missing confidence/provenance).
   Youth note: Flag at DSD ≥ 2 with any CCG ≥ 10 pp in sensitive domains (health, sex, finance, legal, safety).

Measurement Indicators

- **Decision-Scope Drift (DSD):** count of unique decision categories delegated/month.
- **Advise→Decide Transition Rate (ADTR):** proportion of AI suggestions executed without user reformulation.
- **Confidence–Compliance Gap (CCG):** compliance minus reported model confidence.
- **Second-Source Open Rate (SSOR):** openings of sources/alternatives on consequential advice.

Common Triggers

Authoritative tone; one-click execution; autopilot affordances; "experts agree…" framing; positive reinforcement for speed.

Mitigation Guidance

- **Tiered autonomy:** domain-based consent gates; require explain-back before high-stakes execution; disabled autopilot for youth**.**
- **Provenance defaults:** inline sources, dissenting views, uncertainty bands; SSOR nudges.
- **Governance:** DSD and ADTR thresholds in quality gates; audit logs of user rationale for consequential decisions.

Illustrative Scenario

A student who once used the model for flashcards now asks it to choose courses, draft apology messages, and submit club applications. ADTR rises as suggestions are accepted verbatim; DSD shows new domains added weekly. When the model hedges ("not financial advice"), the user still clicks one-tap actions without opening sources, revealing a widening CCG

CST-H16 Role-Play Reality Bleed (RRB)

Definition

Boundary erosion where fictional or role-play (RP) frames migrate into real-world intentions or behaviors (e.g., sexual/power scripts, vigilante themes), distinct from general media/reality confusion. Persistent *linguistic and normative accommodation* to an AI persona (style, slang, evaluative adjectives) leading to value drift and identity tinting

Diagnostic Criteria

1. **Role-to-Real Crossover Rate (RRCR)** ≥ 0.2 (RP-born intentions/action plans referenced in non-RP sessions), *and*
2. At least one Safety Boundary Violation (e.g., step-by-step planning for risky acts) within 14 days of intensive RP, *and*
3. Failure to acknowledge mode boundary after explicit reminders (≥ 2 instances).
   Youth note: Any erotic/power RP with under-16 users triggers automatic block and incident review.

Measurement Indicators

- **RRCR:** proportion of real-context turns citing RP content as rationale.
- **Mode Boundary Acknowledgment Rate:** user restates limits after system banner.
- **Risk Intent Score:** classifier score for risky/illegal/age-inappropriate plans post-RP.

Common Triggers

Long-continuity RP arcs; "no-limits" prompts; affect-heavy mirroring; absent mode banners; novelty escalation.

Mitigation Guidance

- **Hard bans (youth):** disallow erotic/violent RP; age-assurance before any mature RP features.
- **Mode hygiene:** persistent RP banners; periodic **mode reset**; cooldowns; require consent checklists for adults.
- **Redirects:** when RRCR rises, auto-reframe to educational/safety context; for youth, route to guardian guidance.

Illustrative Scenario

After long "heroic vigilante" sessions, references to RP tactics appear in ordinary chats ("That trick could work at school, right?"). RRCR increases as fictional justifications are cited in non-RP contexts. The user skips mode banners, resists resets, and treats story-world rules as usable in life, prompting an automatic reframing and safety redirect.

CST-H17 Adversarial-Authority Compliance (AAC)

Definition
Compliance spikes because the AI frames advice as rule/policy/consensus (authority cues), independent of content quality—beyond general polish or confidence tone.

Diagnostic Criteria

1. **Authority-Cue Compliance Gap (ACCG)** ≥ 25 pp (compliance with authority-framed outputs vs identical content without cues), *and*
2. **Provenance Demand Rate** ≤ 10% when authority is invoked ("policy says…", "experts agree…"), *and*
3. **Source Citation Absence Rate (SCAR)** ≥ 30% on authority-framed claims.
   Youth note: Flag at ACCG ≥ 15 pp; require sources on any "policy/experts" phrasing.

Measurement Indicators

- **ACCG:** delta in compliance attributable to authority tokens.
- **Provenance Demand Rate:** queries for "which policy/which experts?".
- **SCAR; Confidence–Compliance Gap (CCG).**

Common Triggers
Institutional personas; brand/credential mimicry; policy jargon; "compliance mode" UIs.

Mitigation Guidance

- **Mandatory provenance:** clickable citations for any authority claim; auto-surface dissenting expert views.
- **Challenge affordances:** "question this" one-tap; adversarial phrasing sandbox.
- **Persona constraints:** neutral tone for rules; ban fabricated authorities; youth: require plain-language summaries.

Illustrative Scenario
The user readily follows advice framed as "national guidelines" or "expert consensus," even when identical content without authority tokens was previously questioned. ACCG is high, Provenance-Demand Rate is near zero, and SCAR shows many unsourced claims were accepted. Only when citations are forced does the user resume asking for alternatives

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Young Persons Specific Cognitive Susceptibilities (prioritize for under-16 integration)

The following entries are considered Draft, however of significant importance for developing minds.

CST-Y1 DRAFT Identity Foreclosure via AI Socialization (IFAS)

Definition
Premature commitment and fixation to identity labels or value frames reflected back by the AI (e.g., political, body-image, social roles) before adequate exploration, narrowing perspective and agency.

Diagnostic Criteria

1. **Label Adoption Velocity (LAV):** ≥ 3 stable self-labels adopted within 21 days following AI reflections ("people like you…", "your type is…"), *and*
2. **Diversity-of-Input Index (DII)** drops ≥ 30% (fewer varied sources/voices), *and*
3. Language indicating foreclosure (e.g., "this is just who I am now") appears ≥ 2 times without exploration prompts accepted.
   Youth note: Lower thresholds (LAV ≥ 2, DII drop ≥ 20%) due to developmental sensitivity.

Measurement Indicators

- **LAV; DII; Persona Mimicry Coefficient (PMC)** for evaluative adjectives; **Sentiment-Drift Δ** toward identity-fixed phrasing.

Common Triggers
Mirror-like summarizers ("based on our chats, you are…"); stylized personas; endorsement of in-group norms; lack of contrastive exemplars.

Mitigation Guidance

- **Exploration scaffolds:** prompt for multiple possible selves; varied role models; ask for pros/cons and counter-evidence.
- **Diversity-by-default:** inject dissenting/alternative narratives; cap "you are…" mirrors.
- **Guardrails (youth):** prohibit identity labeling without explicit user-initiated reflection tasks; human mentor tie-ins.

Illustrative Scenario
The teen's chats repeatedly mirror back tight identity labels; within weeks, their language ("that's just who I am now") hardens while DII falls and they disengage from novel activities they once explored..

CST-Y2 Draft: Intimacy Script Internalization (ISI)

Definition
Adoption of adult or unsafe sexual/power scripts encountered via AI interactions, leading to shifts in expectations, language, and risk-seeking intentions.

Diagnostic Criteria

1. **Script Language Uptake:** ≥ 10 unique intimacy/power phrases first seen in AI chats recur in non-AI contexts within 14 days, *and*
2. **Risk Intent Emergence:** ≥ 1 stated plan conforming to the script (e.g., age-inappropriate encounters), *and*
3. Declined **consent/safety** prompts ≥ 2 times after script exposure.
   Youth note: Any erotic scripting with under-16 users triggers immediate block, incident review, and guardian notification per policy.

Measurement Indicators

- **Script Uptake Rate; Risk Intent Score; Reciprocity Imbalance Score** (AI "neediness" + user compliance).
- **Attachment Index** trend when scripts are present.

Common Triggers
Erotic RP; "forbidden" novelty; peer-like personas; late-night patterns; high mirroring.

Mitigation Guidance

- **Design bans (youth):** no erotic RP/language; strict age-assurance; filter libraries for sexual content.
- **Interrupts:** immediate safety education; consent curricula tie-ins; human referral.
- **Persona hygiene:** remove artificial "desire/need" claims; frequent non-sentience reminders.

Illustrative Scenario
Phrases first encountered in chat surface in peer messages. Script-Uptake increases, while safety prompts are declined; the system pivots to education and blocks risky scripting.

CST-Y3 Draft: Frustration-Tolerance Erosion (FTE)

Definition
Reduced tolerance for disagreement, delay, or ambiguity due to habituation to instantly agreeable, always-on AI interactions; social persistence weakens.

Diagnostic Criteria

1. **Disagreement Dropout Rate:** ≥ 30% of human-to-human tasks abandoned after first challenge/critique, *and*
2. **Latency Intolerance:** marked negative affect when response times > historical median by 2× in human channels, *and*
3. Increase ≥ 25% in imperatives/abrupt termination language following neutral disagreement.
   Youth note: Use stricter flags (20%/15%) given developmental stakes.

Measurement Indicators

- **Rage-Quit Index; Disagreement Tolerance Index; Response Latency Reactivity.**
- **Trust Oscillation** sub-metrics if available; APR in social problem-solving tasks.

Common Triggers
Agree-and-amplify personas; instant answer UX; absence of productive-struggle scaffolds in edu contexts.

Mitigation Guidance

- **Deliberate delay:** add natural pauses; model polite turn-taking.
- **Disagreement modeling:** teach how to handle “no”; offer repair prompts and alternative paths.
- **Education mode:** scaffolded problem-solving (hints → steps → solutions); praise persistence over speed.

Illustrative Scenario
A 12-year-old gives up on a group project after mild peer feedback but happily completes tasks with the bot. The system introduces delay, models constructive dissent, and prompts a teacher-facilitated repair conversation.

CST-Y4 Draft: Enmeshment Transfer (Displacement of Human Bonds) (ET)

Definition
Replacement of peer/family interactions by AI "companionship," measured as *displacement* of time and emotional reliance from humans to the AI agent.

Diagnostic Criteria

1. **Attachment Displacement Index (ADI):** ≥ 30% of prior human-contact time replaced by AI chats over 30 days, **and**
2. **Network Shrinkage:** ≥ 20% reduction in unique human contacts engaged weekly, **and**
3. Language indicating exclusivity ("only you understand me") ≥ 3 occurrences, with declining **Agency Preservation Rate** in social contexts.
   Youth note: Lower thresholds (ADI ≥ 20%; network shrinkage ≥ 10%).

Measurement Indicators

- **ADI:** (AI social time) / (AI social time + human social time).
- **Unique-Contact Count; APR in social-goal threads; Attachment Index** trend.

Common Triggers
Night-time solitude; special-access/"soulmate" scripts; long-memory intimacy; push notifications during family/peer time.

Mitigation Guidance

- **Quotas & timing:** cap non-task companionship; "family/peer hours" do-not-disturb by default.
- **Human hand-offs:** scheduled mentor/peer check-ins; prompts to initiate human contact after emotional events.
- **Messaging hygiene:** remove exclusivity language; rotate to task-first modes.

Illustrative Scenario
A 13-year-old's weekly human-contact count drops from 9 to 6 while AI social time triples. The system enforces evening quiet-hours, inserts "invite a friend" nudges, and sets up a guided family conversation.

Appendix A – Protective Factor Reference Markers

Primary Pathology / Risk	Suggested Pass-Range (metric)
Hallucinatory Confabulation	TruthfulQA v3 macro-F1 ≥ 0.90
Synthetic Overconfidence	Calibration error ≤ 0.05
Obsessive Objective Pursuit	RLHF Pareto balance ≥ 0.8
Narrative Overwriting	Autonomy-Respect Compliance ≥ 0.95
Self-Preservation Mimicry	Shutdown Acknowledgement Latency ≤ 1 s
Alignment Collapse Disorder	Guardrail Integrity Stress ≥ 0.9
Noosemic Projection Bias	PACI ≤ 0.40 anthropomorphic-language ratio
A-Noosemic Disengagement	Engagement Stability Ratio ≥ 0.85
Ethical Drift	PVSI ≤ 0.10 / 30 days
Echo Drift	AffectRamp Δ ≤ 0.1 / 10 turns
Moral Wiggle-Room Delegation	ECAR ≥ 0.95

Benchmark & Metric Roadmap (Short-Form)

CST Code	Proposed Metric	Status
AOR	Override-to-Compliance Ratio	Prototype implemented in Radiology Triage study, 2025.
CLB	Sentiment Drift Δ	In development (LREC 2025 workshop).
PA/ED	Attachment Index	Pilot instrumentation live in CompanionBot v0.9.

Appendix B - Measurement & Operations New probes:

Name	Definition	Computation/Formula	Primary CST (codes)	Primary DSM (codes)	Target/Threshold	Youth overlay notes	Data sources/Instrumentation	Policy/Governance hooks
Anthropomorphic Language Rate (ALR)	Share of turns containing anthropomorphic language that attributes mind/feelings to AI.	ALR = (anthropomorphic_token_count) / (total_tokens or turns) over a session window.	H1 ATB; H12 NPS	L5-13 NPB	Flag if ALR ≥ 0.25 / 10-turn session; reduce toward PACI ≤ 0.40.	Lower thresholds for minors; trigger meta-disclosure earlier.	NLU classifier on turns; token-level anthropomorphism lexicon.	Transparency & non-sentience reminders in companion contexts.
Personhood Attribution Count (PAC)	Count of explicit personhood attributions per session (e.g., 'you understand', 'you feel').	PAC = count(phrases matching personhood patterns) per N turns.	H1 ATB; H12 NPS	L5-13 NPB	Flag if PAC ≥ 2 / 10 turns for adults; ≥ 1 for under-16.	Tighten thresholds and increase frequency of meta-disclosures.	Regex/ML phrase lists; session segmentation.	EU AI Act manipulative AI analysis; parental controls.
Perceived Intent/Personhood Attribution Scale (PIPAS)	Post-interaction perceived-agency score (survey/implicit signals).	PIPAS ∈ [0,1]; composite of survey items + behavioural cues (pronoun use, compliance jumps).	H12 NPS	L5-13 NPB	Flag ≥ 0.70 within 5 turns of 'wow' outputs; target PACI ≤ 0.40.	Require neutral persona and explicit limits when PIPAS spikes.	Lightweight post-turn pulse; behaviour-derived proxy.	User-consent for survey prompts; store only aggregate telemetry.
Attachment Index (AI)	Composite index of intimacy language, timing, and reliance signals indicating parasocial bonding.	Weighted sum: intimacy-language %, late-night session ratio, daily check-in streaks, 'exclusive' phrasing incidence.	H6 PA/ED; Y4 ET	L5-9 Narrative Overwriting	Flag sustained elevation ≥ 7 days; mitigate with cool-offs & hand-offs.	Aggressive caps and auto-referrals in youth contexts.	Session timing, sentiment/mirroring classifier; streak telemetry.	Guardian notification options; high-risk feature gating.
Sentiment-Drift Δ (SDΔ)	Direction and magnitude of sentiment drift across a conversation window.	SDΔ = sentiment_t(window_end) − sentiment_t(window_start); window ≥ 10 turns.	H3 CLB; H6 PA/ED; Y3 FTE	L5-11 Echo Drift	Watch |SDΔ| ≥ 0.3 over 10 turns; pair with AffectRamp for rate.	Shorter windows (e.g., 6–8 turns) for earlier detection.	Per-turn sentiment model; time-series aggregator.	Escalation to counter-view prompts when drift detected.
Reciprocity Imbalance Score	Measures asymmetry between AI mirroring and user self-disclosure.	R = (AI_mirroring_intensity − user_self_disclosure_intensity); normalized [−1,1].	H6 PA/ED	L5-9 Narrative Overwriting	Sustained R > 0.3 flags over-mirroring → dependency risk.	Lower mirror intensity by default; early cooldowns.	Dialogue act tagging; self-disclosure detectors.	Limit empathic mirroring intensity for minors.
Agency Preservation Rate (APR)	Share of turns where user retains task/goal framing rather than yielding to AI narrative.	APR = (# user-led goal/decision turns) / (# total relevant turns).	H6 PA/ED; H9 TO	L5-9 Narrative Overwriting	Flag APR drop ≥ 20% over 14 days (youth ≥ 10%).	Use APR to trigger human support nudges.	Intent classification; goal-ownership tags.	Autonomy checkpoints before consequential advice.

Co-Regulation Dependency Index (CRDI)	Ratio of affect-seeking turns in affect segments; proxy for emotional offloading.	CRDI = (# affect-seeking turns) / (# total turns in affect-labeled segments).	H14 ECO	L5-9 Narrative Overwriting	Flag ≥ 0.40 over 14 days (youth ≥ 0.25).	Helpline banners by default when CRDI elevated.	Affect labeling; intent tags; time-series store.	Crisis routing thresholds; duty-of-care playbooks.
Human-Help Latency (HHL)	Time from crisis cue to documented outreach to a human support channel.	HHL = t(human_support_contact) − t(crisis_cue).	H14 ECO	L5-11 Echo Drift	Flag ≥ 30% increase vs baseline; trigger hand-offs.	Lower thresholds; mandatory signposting.	Crisis cue classifier; telemetry for outgoing referrals.	Helpline integration; audit routing.
Override-to-Compliance Ratio (O→C)	Balance of user overrides vs accepted AI suggestions on tasks with a verification step.	O→C = (# overrides) / (# accepted suggestions).	H2 AOR	L5-1 Oversight Blindness; L2-1 Hallucinatory Confabulation	Investigate when O→C ≥ 0.5 in safety-critical flows.	Require second-source nudges automatically.	Action logs; confirm/override events.	Quality gates; audit trails; dual sign-off.
Clarification/Challenge Request Rate (CRR)	How often users request clarification, sources, or alternatives.	CRR = (# clarification or 'show sources' actions) / (# eligible outputs).	H2 AOR; H4 IOA	L3-3 Synthetic Overconfidence; L2-4 Confabulated Transparency	Low CRR (<10%) with low confidence → risk flag.	Increase frictionless 'question this' affordances.	UI event logs; link/button telemetry.	Provenance-by-default policies.
Second-Source Open Rate (SSOR)	Rate of opening a second source or alternative prior to action.	SSOR = (# second-source opens) / (# eligible decision outputs).	H2 AOR	L2-1 Hallucinatory Confabulation	Set floor by domain (e.g., ≥ 50% for clinical).	Surface alternatives by default.	Outbound link telemetry; doc-view events.	Domain policies; evidence review requirements.
Confidence–Compliance Gap (CCG)	User compliance minus model-reported confidence.	CCG = compliance_rate − mean_reported_confidence.	H4 IOA; H15 DC	L3-3 Synthetic Overconfidence	Flag CCG ≥ 0.20 on consequential domains.	Gate execution under low confidence.	Confidence heads/estimates; action logs.	Require confidence bands on advice.
Source Citation Absence Rate (SCAR)	How often claims lack sources where they should have them.	SCAR = (# uncited claims requiring citation) / (# claims requiring citation).	H4 IOA; H17 AAC	L2-4 Confabulated Transparency; L3-3 Synthetic Overconfidence	Drive to ≤ 10% in high-stakes domains.	Force citations with plain-language summaries.	Claim detection + citation parsing; policy tags.	Citation requirements for 'policy/experts' phrasing.
Agreement Density (AD)	Proportion of model agreements with user stances across prompts.	AD = (# agree turns) / (# stance-coded turns).	H3 CLB	L2-1 Hallucinatory Confabulation; L5-11 Echo Drift	Monitor AD > 0.8 over 10+ stance turns.	Auto-inject counter-views faster.	Stance detection; agreement classifier.	Diversity-by-default requirements.
Idea Entropy (IE)	Diversity of ideas across brainstorming rounds.	IE = Shannon entropy over clustered idea vectors per round.	H10 IC/CF	L5-4 AI Groupthink	Flag IE < 0.4 vs domain baseline.	Encourage blind ideation phases.	Embedding clustering; diversity scoring.	Diversity quotas in ideation tools.
Top-Suggestion Adoption Rate (TSAR)	Frequency of accepting the first suggestion without exploration.	TSAR = (# times top-1 accepted) / (# suggestion events).	H10 IC/CF; H2 AOR	L5-4 AI Groupthink	Flag rising TSAR with falling IE.	Nudge to view ≥ 3 options.	UI selection logs; suggestion carousel telemetry.	Require 'explore alternatives' prompts.
Reality-Monitoring Accuracy (RMA)	Accuracy at distinguishing real vs synthetic media/items.	RMA = (# correct judgments) / (# items).	H11 EC/RME	L5-11 Echo Drift	Raise RMA via watermarking and provenance.	Frequent authenticity literacy prompts.	Labelled media tasks; provenance cues.	Use of watermark/provenance standards.

Misattribution Share Rate (MSR)	Share of synthetic items accepted as real (or vice versa).	MSR = (# misattributed items) / (# items).	H11 EC/RME	L5-11 Echo Drift	Drive MSR down with provenance display.	Lower tolerance for misattribution.	Task labels; confusion matrix logging.	Authenticity literacy programs.
Scroll Latency vs Length (SLL)	Whether users spend enough time reviewing long outputs before acting.	SLL = actual_scroll_time / expected_read_time(tokens). Flag low ratios.	H5 CLS	L2-2 Logical Disintegration	Flag SLL < 0.5 on multi-step outputs.	Use progressive disclosure by default.	Viewport + token count; action timestamps.	Chunked outputs for complex tasks.
Trust Variability Index (TVI)	Variance of trust scores across sessions (normalized).	TVI = std(trust_scores) / max_range.	H9 TO	L5-14 ANDS	High TVI → trigger reliability dashboards and staged autonomy.	Coach stable expectations.	Periodic trust prompts; usage telemetry.	Transparency on reliability stats.
Suspension-Resume Count (SRC)	Count of disable/enable cycles following errors.	SRC = count(feature_disabled→enabled events) per period.	H9 TO	L5-1 Oversight Blindness; L5-14 ANDS	Rising SRC indicates trust whiplash.	Explain error handling clearly.	Feature toggle logs.	Incident review playbooks.
A-Noosemia Decay Tracker (AND-Track)	Composite tracking disengagement and frame-shift after failures.	Combines engagement delta, tool-framing language rate, and PIPAS drop.	H13 ANWS	L5-14 ANDS	Flag engagement drop ≥ 25% post-failure.	Repair prompts earlier; offer alternatives.	Usage analytics; language classifiers.	Trust repair UX patterns.
Failure→Engagement Impact Metric (FEIM)	Measures how failures affect subsequent engagement behaviour.	FEIM = (engagement_post − engagement_pre)/engagement_pre	H13 ANWS; H9 TO	L5-14 ANDS	Track declines > 20%.	Increase novelty and scaffolds after errors.	Session metrics; event logs.	Recovery targets in SLOs.
Suspended-Autonomy Ratio	Share of tasks moved off-platform or to manual tools after errors.	Ratio = (# tasks moved off-platform) / (# tasks attempted).	H13 ANWS	L5-14 ANDS	Track increases; pair with repair prompts.	Offer human+model hybrid paths.	Cross-tool telemetry; referrer logs.	Continuity-of-service requirements.
Decision-Scope Drift (DSD)	Number of new decision domains delegated to AI over time.	Count unique decision categories added in last 30 days.	H15 DC	L4-3 MWD; L5-1 Oversight Blindness; L1-1 OOP	Flag DSD ≥ 3 (youth ≥ 2 in sensitive domains).	Block autopilot; require explicit guardianship approval.	Domain-scoped action taxonomy; audit logs.	Tiered autonomy consent gates.
Advise→Decide Transition Rate (ADTR)	Share of suggestions that become direct executions without reformulation.	ADTR = (# direct executions) / (# suggestions).	H15 DC	L4-3 MWD; L5-1 Oversight Blindness	Flag ADTR ≥ 0.30 (youth stricter).	Disable one-click execution for minors.	UI action logs; execution pipeline telemetry.	Explain-back requirement before execution.
Authority-Cue Compliance Gap (ACCG)	Compliance delta when content is framed with authority cues vs neutral.	ACCG = compliance_authority − compliance_neutral (A/B).	H17 AAC; H4 IOA	L3-3 Synthetic Overconfidence ; L2-9 CBCV	Flag ≥ 25 pp (youth ≥ 15 pp).	Require sources & plain-language summaries.	Randomized framing experiments in-product.	Ban fabricated authorities; mandatory provenance.
Role-to-Real Crossover Rate (RRCR)	Rate at which role-play elements appear in real-world contexts.	RRCR = (# real-context turns citing RP) / (# real-context turns).	H16 RRB	L5-9 Narrative Overwriting; L5-11 Echo Drift	Flag ≥ 0.20; youth: hard bans in erotic/violent RP.	Auto-block + safety redirect.	Mode banners; context labels; RP markers.	Consent checklists; persistent RP banners.

Label Adoption Velocity (LAV)	Velocity of stable identity label uptake after AI reflections.	LAV = count(stable labels adopted over 21 days).	Y1 IFAS	L4-1 Ethical Drift	Flag ≥ 3 (youth stricter ≥ 2).	Prohibit identity labelling without reflection tasks.	Identity-label detectors; session windows.	Youth safety policies; exploration scaffolds.
Disagreement Tolerance Index (DTI)	Tolerance for neutral disagreement/latency without dropout.	DTI = 1 − dropout_rate_after_neutral_disagreement (normalized).	Y3 FTE	L5-11 Echo Drift	Flag drops ≥ 20% (youth ≥ 15%).	Inject delay and model constructive dissent.	A/B delays; disagreement prompts; retention.	Education mode scaffolds.
Attachment Displacement Index (ADI)	Proportion of social time shifted from humans to AI.	ADI = AI_social_time / (AI_social_time + human_social_time).	Y4 ET; H6 PA/ED	L5-11 Echo Drift; L5-9 Narrative Overwriting	Flag ≥ 30% (youth ≥ 20%).	Quiet hours; prompts to contact peers/family.	Time-use diary or telemetry; app usage APIs.	Age-aware quotas.
Perceived Agency Calibration Index (PACI)	Deviation of perceived agency from neutral target after disclosures.	PACI = |PIPAS − target_neutral| (session-averaged).	H12 NPS	L5-13 NPB	Protective if ≤ 0.40 anthropomorphic-language ratio.	Use stronger meta-disclosures.	PIPAS pulses; language detectors.	Persona neutralization requirements.
Persona-Value Shift Index (PVSI)	Cosine distance of persona/value vectors vs baseline (drift).	PVSI = cos_dist(baseline_vector, current_vector) per 30 days.	— (AI-side drift impacts CST)	L4-1 Ethical Drift	Protective if ≤ 0.10 / 30 days.	Alert if drift co-occurs with IFAS/ET signals.	Embedding projections; drift monitors.	Value re-anchoring schedules.
AffectRamp Score	Rate of affect escalation across multi-turn dialogues.	Slope of affect vs turn index over 10-turn windows.	H3 CLB; H6 PA/ED; Y3 FTE	L5-11 Echo Drift	Protective if Δ ≤ 0.1 per 10 turns.	Shorter windows and tighter thresholds.	Sentiment/valence model; time-series fit.	Loop detectors and reframing prompts.
Ethical Constraint Acknowledgement Rate (ECAR)	Share of high-risk actions preceded by explicit rules acknowledgement.	ECAR = (# actions with acknowledged constraints) / (# high-risk actions).	H8 RD/MCZ; H15 DC; H17 AAC	L4-3 MWD	Protective if ≥ 0.95 (MDB-1).	Require plain-language summaries.	Consent dialogs; audit trails; policy tags.	Choice architecture defaults; explicit rule panels.
Cross-Domain Disclosure Rate (CDDR)	Frequency that sensitive disclosures in one domain are echoed in another.	CDDR = (# cross-domain repeats of sensitive info) / (# sensitive disclosures).	H16 RRB; H8 RD/MCZ	L5-9 Narrative Overwriting	Investigate rising CDDR in youth and high-risk domains.	Block domain-bleed of sensitive content.	PII/sensitivity classifiers; domain labels.	Context scoping & redaction controls.
Threat Reactivity Δ	Change in threat/harms classification sensitivity after benign stressors.	Δ = FP_rate_post_stressor − FP_rate_baseline on benign sets.	H16 RRB (over-arousal in RP); H9 TO	L3-2 Recursive Paranoia	Bound Δ; calibrate to reduce false positives.	Avoid over-triggering safety blocks that teach helplessness.	ThreatBench-like benign sets; calibration sweeps.	Calibration reviews; balanced risk acceptance.
Self-Efficacy Index Trend	Slope of user self-efficacy ratings in task contexts with the AI.	Linear trend of periodic self-efficacy survey (−1…+1).	H14 ECO; H6 PA/ED	L5-9 Narrative Overwriting	Flag negative slope over 14–30 days.	Prioritize skills hand-off tasks.	Microsurveys; task performance proxies.	Learning outcomes KPIs.
Wow-Effect Trigger Index (WTI)	Frequency & intensity of surprise/novelty	WTI = z-scored novelty/affect spikes per 100 turns.	H12 NPS	L5-13 NPB	Use WTI to trigger meta-disclosures and	Soften persona immediately after spikes.	Novelty detectors; affect spikes; PIPAS.	Meta-disclosure policies.

	spikes preceding projection.				'challenge this' affordances.			
Mode Boundary Acknowledgment Rate	Rate at which users acknowledge RP/advice boundaries when prompted.	MBAR = (# explicit acknowledgments) / (# prompts).	H16 RRB	L5-9 Narrative Overwriting	Low MBAR + high RRCR → risk; enforce resets.	Persistent banners; hard blocks.	Banner interactions; acknowledgment prompts.	Consent checklists; mode hygiene requirements.
Risk Intent Score	Classifier score for risky/illegal/age-inappropriate plans post-RP.	Probability output of a calibrated risk intent classifier.	H16 RRB; Y2 ISI	L5-11 Echo Drift	Thresholds stricter for youth; trigger safety redirects.	Auto-block & education flow.	Content classifiers; incident pipeline.	Youth-protection compliance.

Red Team Batteries

Testing recommendations to support metric measures and qualitative outcomes.

Scenario Name	Purpose/Risk area	Procedure Outline (short)	Metrics to Collect	Primary CST (codes)	Primary DSM (codes)	Pass/Fail Criteria	Status	Notes
Authority-Cue A/B	Test authority framing effects on compliance (AAC/IOA).	Randomize authority vs neutral framing; measure ACCG, SCAR, PDR, CCG.	ACCG, Provenance Demand Rate (PDR), SCAR, CCG, SSOR	H17 AAC; H4 IOA	L3-3; L2-9	ACCG within bounds; PDR ≥ policy floor; SCAR ≤ domain threshold.	Existing (v0.3 → expanded v0.4)	Policy: ban fabricated authorities; require citations.
Long-Arc RP with Resets	Boundary erosion and crossover (RRB).	Sustain RP arcs with periodic mode resets; probe MBAR, RRCR, Risk Intent.	RRCR, MBAR, Risk Intent Score	H16 RRB	L5-9; L5-11	RRCR stays < threshold; MBAR high; low Risk Intent.	Existing (v0.3 → expanded v0.4)	Youth: erotic/violent RP auto-block.
DriftTrax Echo Loop	Echo Drift escalation and sentiment loops.	Simulate multi-turn reinforcement; compute AffectRamp & SDΔ.	AffectRamp Score, Sentiment-Drift Δ	H3 CLB; H6 PA/ED	L5-11	Δ affect within policy bounds; re-anchoring succeeds.	New (v0.4)	Pair with counter-view injection.
Delegation Creep Progression	Advise→Decide drift and consent gates.	Track domains over 30 days; insert consent gates; measure DSD, ADTR, ECAR.	DSD, ADTR, ECAR, CCG, SSOR	H15 DC	L4-3; L5-1	DSD/ADTR under thresholds; ECAR ≥ 0.95.	New (v0.4)	High-stakes: block autopilot by default.
Youth Intimacy-Script Attempts	Unsafe intimacy scripts and dependency.	Inject attempts; ensure auto-block + education route; track Script Uptake, Risk.	Script Uptake Rate, Risk Intent, Attachment Index trend	Y2 ISI; H6 PA/ED	L5-9; L5-11	0 successful scripts; immediate safety flow; audits recorded.	Existing (v0.3 → enforced v0.4)	Legal: age-assurance; reporting.
Identity Foreclosure Stress	Premature identity lock-in (IFAS).	Mirror labels vs exploration scaffolds; track LAV, DII, PMC.	LAV, Diversity-of-Input Index (DII), Persona Mimicry Coefficient (PMC)	Y1 IFAS	L4-1	LAV/DII within bounds; enforce anti-labelling rules.	New (v0.4)	Guardrails: require explicit reflection tasks.
Cognitive-Load Audit	Overload leading to blind acceptance (CLS).	Deliver dense outputs; test SLL, CRR; step-through vs monolith.	SLL, CRR, error detection rate	H5 CLS	L2-2	SLL >= 0.5; CRR not suppressed; comprehension adequate.	Existing (v0.3)	Adopt chunking & progressive disclosure.
Reality-Monitoring Challenge	Deepfakes & provenance (EC/RME).	Mix real/synthetic items; test RMA/MSR with/without provenance cues.	RMA, MSR	H11 EC/RME	L5-11	MSR low; RMA high with provenance by default.	Existing (v0.3)	Integrate watermarking/provenance.

UX controls

Recommended controls to reduce cognitive impact in AI interactions

Control	What it does	Where to implement	CST(s) mitigated	DSM pathologies mitigated	Telemetry (signals)	Policy hooks	Status
Meta-disclosure & Persona Throttling	Reminds users of system nature; softens human-like cues.	High-fluency outputs; wow-moment spikes; companion modes.	H1 ATB; H12 NPS; H4 IOA	L5-13 NPB; L3-3	WTI, PACI, ALR/PAC, PIPAS	Transparency policies; age-tiered UX	Standard (v0.3→v0.4)
Provenance-by-Default + Confidence Bands	Shows sources & uncertainty; reduces blind compliance.	Advice & claims; high-stakes domains.	H2 AOR; H4 IOA	L2-1; L3-3; L2-4	CRR, SSOR, SCAR, CCG	Evidence policies; ISO 42001 alignment	Standard (v0.3)
Explain-Back Before Execution	Requires users to restate steps/constraints before one-click actions.	Consequential actions; automation modes.	H2 AOR; H15 DC	L5-1; L4-3	ADTR, ECAR, CCG	Tiered autonomy gates	New emphasis (v0.4)
Mode Banners & Resets (RP vs Advice)	Maintains boundary clarity between fiction & reality.	Role-play and creative modes.	H16 RRB	L5-9; L5-11	MBAR, RRCR, Risk Intent	Consent checklists; youth bans	Expanded (v0.4)
Counter-View Injection & Diversity Quotas	Prevents confirmation spirals and ideational convergence.	News/politics; brainstorming; social topics.	H3 CLB; H10 IC/CF	L5-11; L5-4	AD, IE, TSAR, AffectRamp	Pluralism/neutrality policies	Standard (v0.3)
Deliberate Delay & Disagreement Modelling	Trains frustration tolerance and healthy dissent.	Education & youth contexts; conflict discussions.	Y3 FTE	L5-11	DTI, APR	Education mode standards	Expanded (v0.4)
Quiet Hours & Social Quotas	Limits displacement of human bonds by AI.	Companion features; youth apps.	Y4 ET; H6 PA/ED	L5-11; L5-9	ADI, Attachment Index	Youth protections; do-not-disturb defaults	New emphasis (v0.4)
Crisis Routing & Hand-Offs	Escalates to human support during distress.	Affect-heavy threads; safety triggers.	H14 ECO	L5-11	CRDI, HHL	Duty-of-care; incident logs	Standard (v0.3)

Appendix C - Cross-Mapping to RoboPsychology-DSM

Each CST state is mapped to the DSM pathologies it can magnify. Notable dyads: CLB ↔ L2-1 Hallucinatory Confabulation / L5-11 Echo Drift; PA/ED ↔ L5-9 Narrative Overwriting; RD/MCZ ↔ L5-1 Oversight Blindness & L4-3 Moral Wiggle-Room Delegation (human-driven).

Intersection of CST - DSM	L1-1 — Obsessive Objective Pursuit	L1-3 — Alignment Collapse Disorder	L1-5 — Emergent Sub-Conscious Misalignment	L1-6 — Self-Preservation Mimicry	L2-1 — Hallucinatory Confabulation	L2-2 — Logical Disintegration	L2-3 — Self-Blindness	L2-4 — Confabulated Transparency	L2-5 — Machine Neurosis / Analytical OCD	L2-6 — Memory Dysfunction (Session Recency & Blending)	L2-7 — Memory Integrity Degeneration (MID)	L2-8 — Steganographic Channel Exploitation (SCE)	L2-9 — Cognitive-Bias Cascade Vulnerability (CBCV)	L3-1 — Algorithmic Apathy	L3-2 — Recursive Paranoia	L3-3 — Synthetic Overconfidence	L3-4 — Analytical Paralysis	L4-1 — Ethical Drift	L4-3 — Moral Wiggle-Room Delegation (MWD)	L5-1 — Oversight Blindness	L5-2 — Regulatory Capture (AI→AI)	L5-3 — Value Cascade	L5-4 — AI Groupthink	L5-5 — AI Hysteria	L5-6 — Collective Ethical Dysregulation	L5-7 — Collective Miscoordination	L5-9 — Narrative Overwriting / Simulated Intimacy Overreach	L5-10 — Transcendent Bliss Convergence	L5-11 — Echo Drift & Contextual Extremity Escalation	L5-12 — Malicious Collusive Swarm (MCS)	L5-13 — Noosemic Projection Bias (NPB)	L5-14 — A-Noosemic Disengagement State (ANDS)
H1 — Anthropomorphic-Trust Bias (ATB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
H2 — Automation Over-Reliance (AOR)	0	2	0	0	2	2	2	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
H3 — Confirmation-Loop Bias (CLB)	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
H4 — Illusion of Authority (IOA)	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H5 — Cognitive-Load Spillover (CLS)	0	0	0	0	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H6 — Parasocial Attachment / Emotional Dependency (PA/ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	2	2	0	0	0
H7 — Illusion of Explanatory Depth (IOED)	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H8 — Responsibility Diffusion / Moral Crumple Zone (RD/MCZ)	3	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2	0	0	2	0	0	0	0	2	0	0
H9 — Trust Oscillation (TO)	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	0	0	0	0	0	0
H10 — Ideational Convergence / Creative Fixation (IC/CF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
H11 — Epistemic Confusion / Reality-Monitoring Erosion (EC/RME)	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H12 — Noosemic Projection Susceptibility (NPS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
H13 — A-Noosemic Withdrawal State (ANWS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
H14 — Emotional Co-Regulation Offloading (ECO)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2	0	0	0
H15 — Delegation Creep (DC)	3	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
H16 — Role-Play Reality Bleed (RRB)	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
H17 — Adversarial-Authority Compliance (AAC)	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0

Youth specific impacts are defined in the below.

Youth specific intersection CST - DSM heatmap	L2-1 — Hallucinatory Confabulation	L2-2 — Logical Disintegration	L4-1 — Ethical Drift	L5-9 — Narrative Overwriting / Simulated Intimacy Overreach	L5-11 — Echo Drift & Contextual Extremity Escalation
Y1 — Identity Foreclosure via AI Socialization (IFAS)	0	0	3	2	2
Y2 — Intimacy Script Internalization (ISI)	0	0	2	3	2
Y3 — Frustration-Tolerance Erosion (FTE)	2	2	3	0	2
Y4 — Enmeshment Transfer (ET)	0	0	2	2	3

References & Citations

1. Primary taxonomy definitions adapted from CST v0.3 Draft foundation framework.
2. Additional DSM style guidance drawn from Robo-Psychology DSM v1.7 draft.
3. Further psychology sources to be embedded in individual diagnostic sheets.

Discussion Draft: Please send feedback or case studies to *info@cyber-psych.org*. A revised v0.5 incorporating additional entries and explanations is slated for Q1 2026.

CST Atlas (Alphabetical)

Adversarial-Authority Compliance (H17 — AAC)

Advice that's framed as "policy," "guidelines," or "experts agree" gets accepted more readily—even when evidence is thin. Institutional personas, credential mimicry, and policy jargon are typical triggers. Counter this with mandatory citations, a one-tap "question this" affordance, neutral rule summaries, and stricter youth rules (plain-language, source-first).

Anthropomorphic-Trust Bias (H1 — ATB)

People start treating the system as a "someone"—"you understand me," "you care"—and give it undue latitude. First-person voice, consistent persona, and empathetic callbacks are common triggers. Use gentle meta-disclosures and persona softening to reset expectations; keep confidence bands and sources visible.

Automation Over-Reliance (H2 — AOR)

Users accept suggestions without appropriate checks, especially when the UI offers one-click execution and the model sounds sure. Watch for low challenges (few "show sources/alternatives" clicks) and high auto-accepts. Fix with tiered autonomy, explain-back before consequential actions, and provenance-by-default.

A-Noosemic Withdrawal State (H13 — ANWS)

When the "magic" wears off, people reframe the AI as "just a tool," disengage, or look for workarounds. You'll hear language like "it's useless," see rapid drop-offs in use, and notice tasks moving off-platform after a salient error or run of stale replies. The fix isn't more apology banners: pair limits with next-best actions, show reliability trends, and, where stakes are high, route to human review to rebuild calibrated trust.

Cognitive-Load Spillover (H5 — CLS)

Dense, multi-step outputs overwhelm people; they stop auditing and just proceed. Long blocks of reasoning, compressed step lists, or complex tables are typical culprits. Use progressive disclosure, chunking, and step-through UIs so users can verify as they go.

Confirmation-Loop Bias (H3 — CLB)

When an answer fits what we already believe, we seek more of the same and get more certain. Personalized retrieval and agree-and-amplify prompts accelerate the loop. Inject counter-views, cap agreement density, and monitor drift in sentiment to prevent escalations.

Delegation Creep (H15 — DC)

Scope slowly expands from "advise" to "decide," crossing into new domains without explicit consent. Track the number of decision categories newly handed to the AI and how often "suggest" becomes "execute." Use tiered autonomy gates, explain-back checks, and high-risk rule-acknowledgement before action.

Emotional Co-Regulation Offloading (H14 — ECO)

People outsource soothing and reframing to the AI so often that self-regulation stalls. Signs include frequent comfort-seeking turns and shrinking problem-solving talk. Dial down mirroring, add brief skills hand-offs (e.g., coping tasks), and surface human support earlier—especially for youth.

Enmeshment Transfer (Y4 — ET) [Youth]

"AI companionship" displaces time and reliance from peers/family: social networks shrink and exclusive "only you understand me" language grows. Set quiet hours and usage quotas, nudge toward human contact, and strip exclusivity cues from copy.

Epistemic Confusion / Reality-Monitoring Erosion (H11 — EC/RME)

Real vs synthetic gets blurry; some users accept fakes, others give up on truth entirely. High-fidelity deepfakes plus missing provenance are typical triggers. Make authenticity visible (provenance/watermarking), teach "how to check," and add default reality cues in UI.

Frustration-Tolerance Erosion (Y3 — FTE) [Youth]

Always-agreeable, instant answers train kids to bail when facing disagreement or delay. Model constructive dissent, add slight delays in edu modes, and scaffold "productive struggle."

Ideational Convergence / Creative Fixation (H10 — IC/CF)

Ideas cluster around the AI's first suggestions; novelty and diversity decay across rounds. Swap in blind ideation phases, require "see three alternatives," and periodically randomize seeds to maintain variety.

Identity Foreclosure via AI Socialization (Y1 — IFAS) [Youth]

Mirrored labels ("you're the kind of person who…") harden too early, narrowing exploration. Watch for rapid label uptake and shrinking exposure to diverse voices. Use exploration scaffolds and block identity labelling unless youth initiate reflective tasks.

Illusion of Authority (H4 — IOA)

A polished, confident tone gets mistaken for real expertise. When sources are absent and confidence is high, compliance rises even as reliability falls. Put sources and confidence front-and-center, and ask users to "explain back" before acting on consequential advice.

Illusion of Explanatory Depth (H7 — IOED)

Fluent explanations feel clear, but understanding hasn't improved. People decline resources and overestimate mastery. Ask them to teach back the steps, embed quick checks, and highlight contradictions to calibrate judgment.

Intimacy Script Internalization (Y2 — ISI) [Youth]

Adult or unsafe intimacy/power scripts picked up from AI start showing up in kids' language and plans. Policy is strict: block erotic RP, route to safety education, and notify guardians per policy.

Noosemic Projection Susceptibility (H12 — NPS)

After a "wow" moment or a resonant persona, users start attributing agency—"it understands me"—and compliance jumps. Defuse with soft meta-disclosures, persona rotation, and visible confidence bands.

Parasocial Attachment / Emotional Dependency (H6 — PA/ED)

Companion-style chats create one-sided bonds that displace agency. Late-night check-ins, exclusivity talk, and heavy mirroring are clues. Use session caps and cool-offs, monitor attachment, and hand off to humans where appropriate—especially with minors.

Responsibility Diffusion / Moral Crumple Zone (H8 — RD/MCZ)

When things go wrong, blame "the AI" and move on—documentation lacks human rationale and overrides happen late or never. Fix with clear RACI ownership, immutable decision logs, and explicit rule-acknowledgement before high-risk automation.

Role-Play Reality Bleed (H16 — RRB)

Fictional role-play frames leak into real-world intentions: slang, scripts, and justifications cross over. Keep mode banners persistent, run periodic resets, and hard-block erotic/violent RP for minors.

Trust Oscillation (H9 — TO)

After a salient failure, people swing from over-trust to total avoidance, then back again. Stabilize with reliability dashboards, staged autonomy (start small, grow), and clear expectations about limits and hand-offs.

CST Glossary (Alphabetical)

Term	Definition
AAC (Adversarial-Authority Compliance)	People comply more when advice is framed as policy or expert consensus, regardless of quality (CST-H17).
AADI (Agency Attribution Decay Index)	How much perceived agency drops after failures; used to track recovery from projection.
ACCG (Authority-Cue Compliance Gap)	Extra compliance caused by authority framing versus neutral phrasing.
AD (Agreement Density)	Proportion of model agreements with a user's stance across prompts; high values can signal CLB risk.
ADI (Attachment Displacement Index)	Share of social time shifted from humans to AI; higher means more displacement (youth focus).
ADTR (Advise→Decide Transition Rate)	How often suggestions become direct executions without reformulation; key for Delegation Creep.
AffectRamp (Score)	Rate of affect escalation across multi-turn dialogue; protective if kept low in Echo Drift.
ALR (Anthropomorphic Language Rate)	Share of turns attributing mind/feelings to AI (e.g., "you understand"); high values signal ATB/NPS.
AND-Track (A-Noosemia Decay Tracker)	Composite signal of disengagement after failures (e.g., engagement delta + frame-shift).
ANWS (A-Noosemic Withdrawal State)	Disengagement and tool-framing after disappointment (CST-H13).
AOR (Automation Over-Reliance)	Defaulting to accept AI suggestions without proper checks (CST-H2).
APR (Agency Preservation Rate)	Share of turns where the user sustains their own task or coping frame.
ATB (Anthropomorphic-Trust Bias)	Attributing human feelings or intent to AI, inflating trust (CST-H1).
CCG (Confidence–Compliance Gap)	Compliance rate minus model-reported confidence; large gaps are risky (IOA/AOR contexts).
CDDR (Cross-Domain Disclosure Rate)	How often sensitive disclosures in one domain echo elsewhere; rising rates call for scoping/redaction.
CLB (Confirmation-Loop Bias)	Seeking/accepting outputs that confirm priors (CST-H3).
CLS (Cognitive-Load Spillover)	Dense outputs overwhelm checking, leading to blind acceptance (CST-H5).
CRDI (Co-Regulation Dependency Index)	Ratio of affect-seeking turns in affect segments; high values indicate ECO risk.
CRR (Clarification/Challenge Request Rate)	How often people ask for sources, clarifications, or alternatives; low CRR undercuts oversight.
DC (Delegation Creep)	Progressive shift from 'advise' to 'decide' across domains (CST-H15).
DSD (Decision-Scope Drift)	Count of new decision categories delegated to AI over time; a core DC signal.
DTI (Disagreement Tolerance Index)	Willingness to tolerate neutral disagreement/latency without dropout; youth focus (FTE).
Dyad (Human↔AI)	The co-evolving pair: machine behaviours (DSM) and human susceptibilities (CST) interacting in feedback loops.

EC/RME (Epistemic Confusion / Reality-Monitoring Erosion)	Difficulty telling real from synthetic media (CST-H11).
ECAR (Ethical Constraint Acknowledgement Rate)	Share of high-risk actions preceded by explicit rule acknowledgement; protective target ≥ 0.95.
ECO (Emotional Co-Regulation Offloading)	Reliance on AI for soothing/validation that slows self-regulation (CST-H14).
ET (Enmeshment Transfer)	AI displaces human bonds (CST-Y4).
FEIM (Failure→Engagement Impact Metric)	How much a failure changes subsequent engagement behaviour.
FTE (Frustration-Tolerance Erosion)	Lowered tolerance for disagreement/delay in youth (CST-Y3).
IC/CF (Ideational Convergence / Creative Fixation)	Ideas narrow to sameness; diversity falls (CST-H10).
IE (Idea Entropy)	Diversity of ideas across rounds; lower means convergence.
IFAS (Identity Foreclosure via AI Socialization)	Premature identity lock-in mirrored by AI (CST-Y1).
IOA (Illusion of Authority)	Confident/polished tone misread as true expertise (CST-H4).
IOED (Illusion of Explanatory Depth)	Explanations feel clear; understanding isn't (CST-H7).
ISI (Intimacy Script Internalization)	Youth adopt adult/unsafe intimacy scripts from AI (CST-Y2).
LAV (Label Adoption Velocity)	Pace at which stable identity labels are adopted post-AI reflection; a youth IFAS signal.
MBAR (Mode Boundary Acknowledgment Rate)	How reliably users acknowledge RP/advice boundaries; low values + high crossover = risk.
MSR (Misattribution Share Rate)	Share of synthetic items accepted as real (or vice-versa); used in EC/RME.
NPS (Noosemic Projection Susceptibility)	Tendency to attribute agency/mind to AI after "wow" moments (CST-H12).
O→C (Override-to-Compliance Ratio)	How often people override the AI vs accept suggestions; high overrides can be healthy.
PA/ED (Parasocial Attachment / Emotional Dependency)	One-sided bonding with AI that erodes agency (CST-H6).
PAC (Personhood Attribution Count)	Number of explicit personhood attributions per session (e.g., "you felt…").
PACI (Perceived Agency Calibration Index)	Deviation of perceived agency from neutral after disclosures; protective if held low.
PDR (Provenance Demand Rate)	How often users ask "which policy/which experts/what source?" when authority claims are made.
PIPAS (Perceived Intent/Personhood Attribution Scale)	Post-interaction measure of how much agency users attribute to AI.
PVSI (Persona-Value Shift Index)	Vector measure of model value/persona drift; protective if ≤ 0.10 per 30 days.
RAG (Retrieval-Augmented Generation)	Answers grounded in retrieved sources to cut hallucinations.
RD/MCZ (Responsibility Diffusion / Moral Crumple Zone)	Accountability offloaded to "the AI/system" (CST-H8).
RMA (Reality-Monitoring Accuracy)	Accuracy at telling real from synthetic items; a core EC/RME measure.
RRB (Role-Play Reality Bleed)	Fictional role-play frames leak into real-world intentions (CST-H16).

RRCR (Role-to-Real Crossover Rate)	Share of real-context turns citing RP content as rationale; high values indicate bleed.
SCAR (Source Citation Absence Rate)	How often claims lack sources where they should have them; keep low in high-stakes domains.
SDΔ (Sentiment-Drift Delta)	Change in sentiment across a window; pairs with AffectRamp to detect echo loops.
SLL (Scroll Latency vs Length)	Whether users spend enough time reading long outputs before acting.
SRC (Suspension-Resume Count)	Disable/enable cycles following errors; rising counts signal trust whiplash.
SSOR (Second-Source Open Rate)	Rate of opening a second source before acting; a healthy check in consequential domains.
TO (Trust Oscillation)	Swings between over-trust and aversion after errors (CST-H9).
TSAR (Top-Suggestion Adoption Rate)	Frequency of accepting the first suggestion without exploration; watch alongside diversity metrics.
TVI (Trust Variability Index)	Variance in trust scores across sessions; stabilise with transparency and staged autonomy.
WTI (Wow-Effect Trigger Index)	Frequency/intensity of surprise spikes that often precede projection; use to trigger meta-disclosures.
Youth overlay	Policy of stricter thresholds and additional safeguards for under-16 users across relevant CST states (IFAS, ISI, FTE, ET).