Conversence

DEMOCRACY AS A SCALED COLLECTIVE INTELLIGENCE PROCESS:
POINTS OF VULNERABILITY AND AUGMENTATION

Originally presented in the Workshop on AI and democracy, within IJCAI 2025

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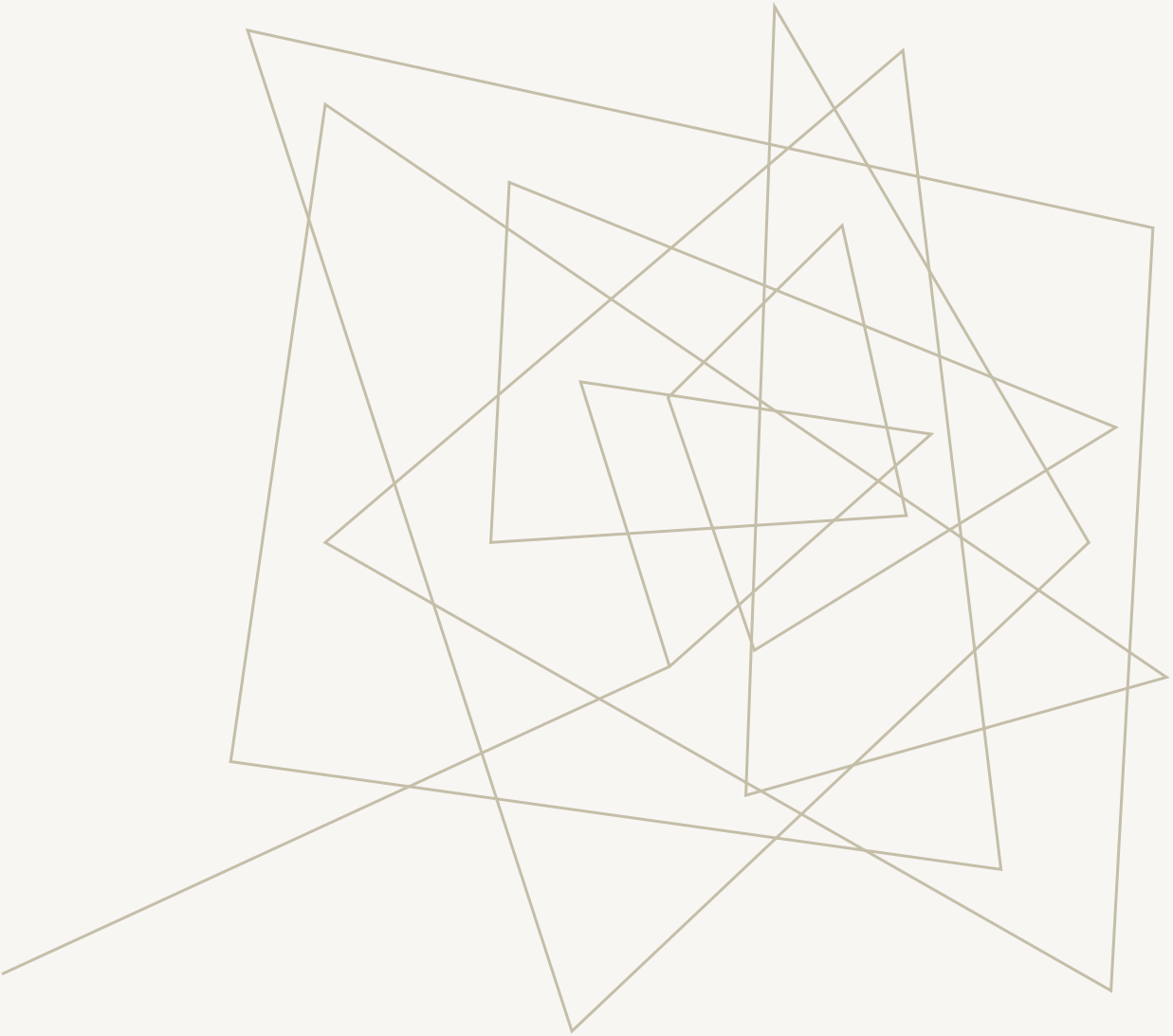
AGENDA

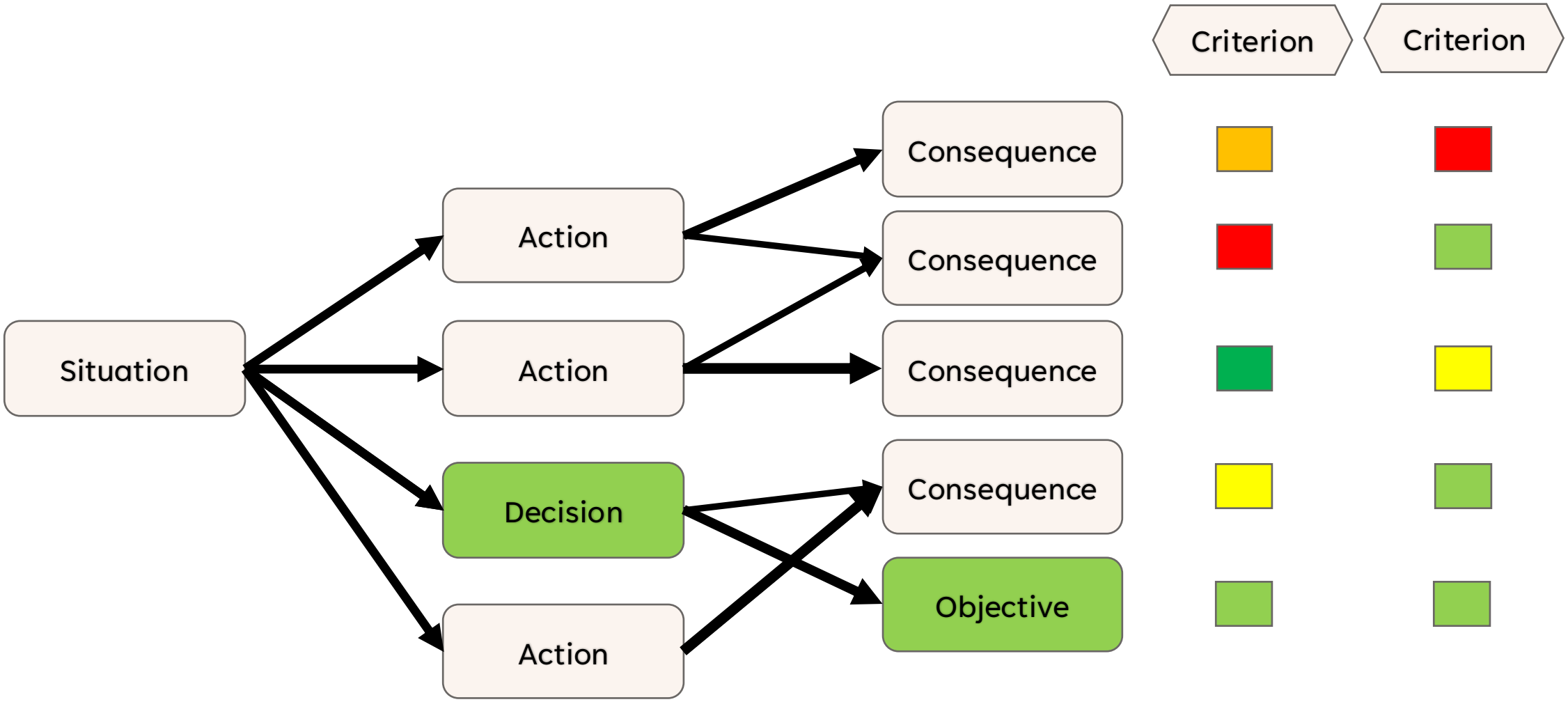
01	Democracy as a rational decision mechanism
02	Democracy as social negotiation
03	AI as a coordination mechanism
04	Structured conversations



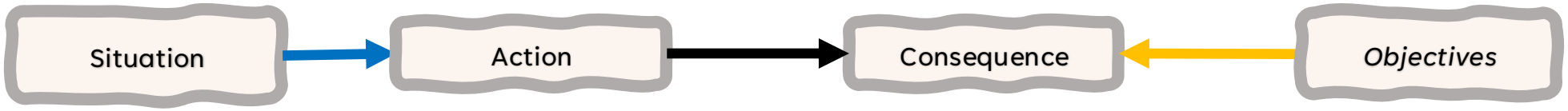
DEMOCRACY AS A RATIONAL DECISION MECHANISM

OPTIMIZE DECISIONS

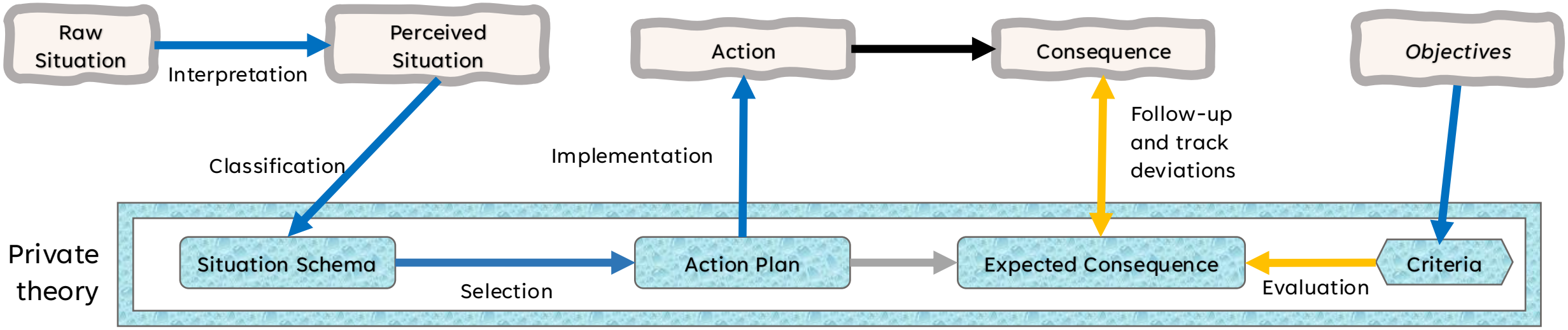
BASED ON AN IDEALIZED DECISION MODEL



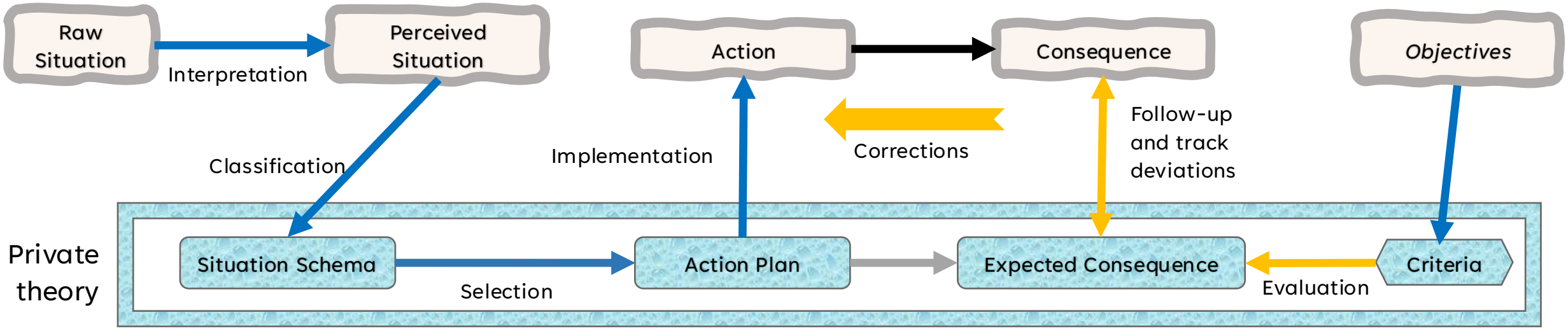
FROM THE OUTSIDE



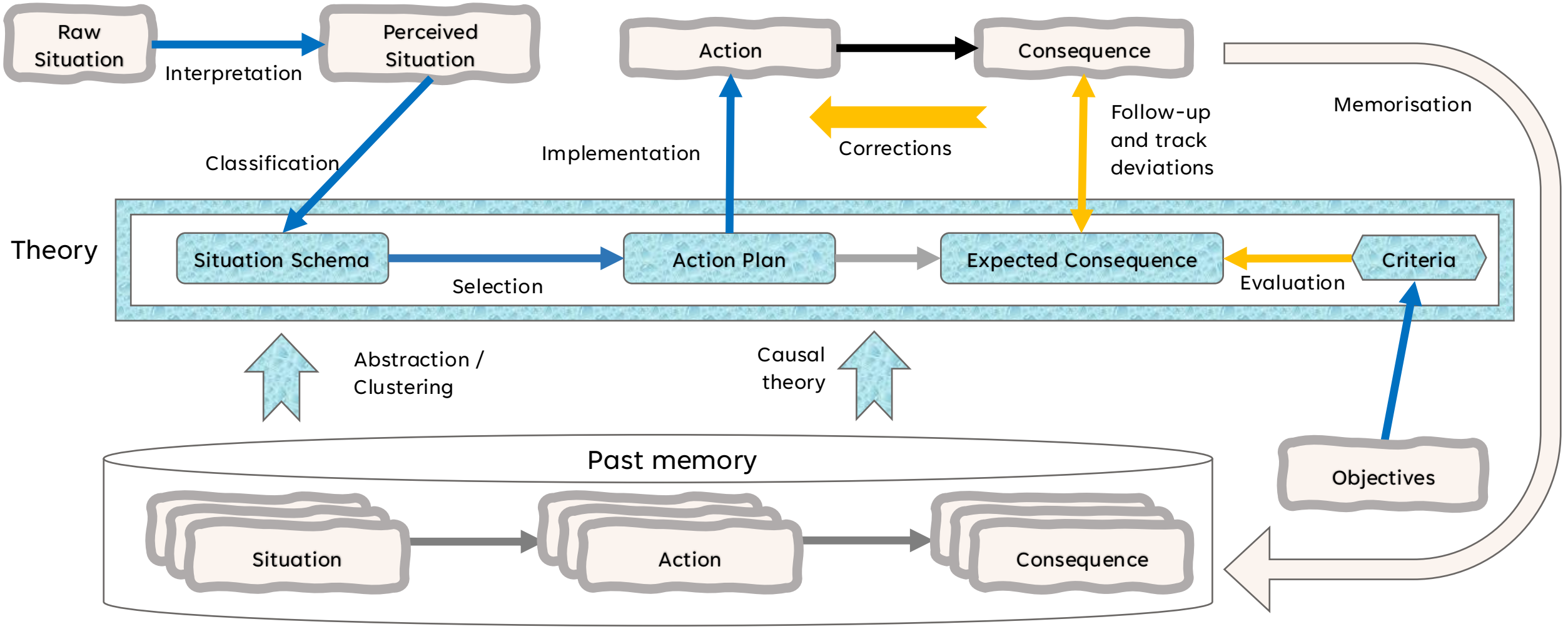
PRIVATE THEORY



CORRECTIONS

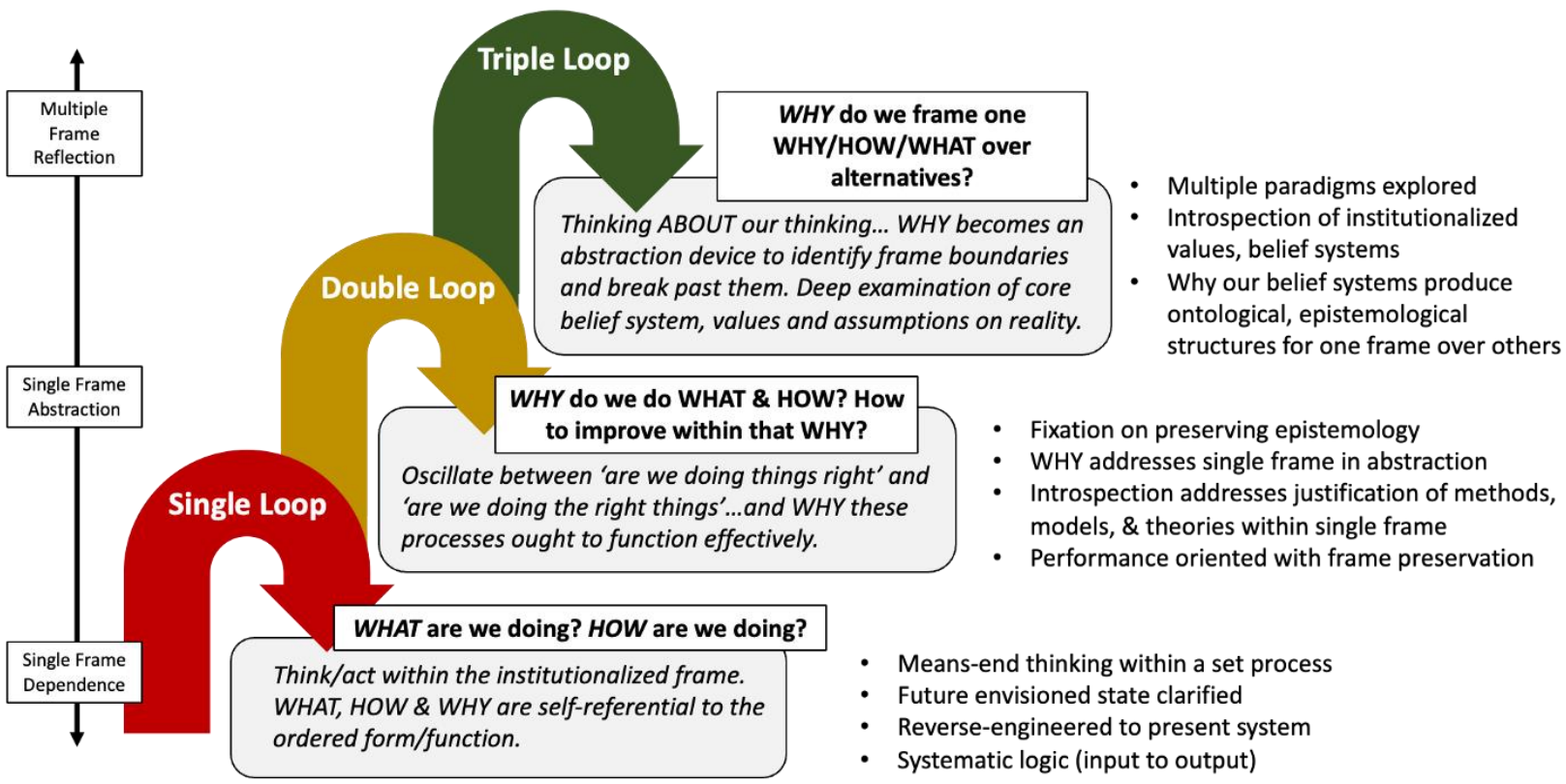


THEORY FROM EXPERIENCE

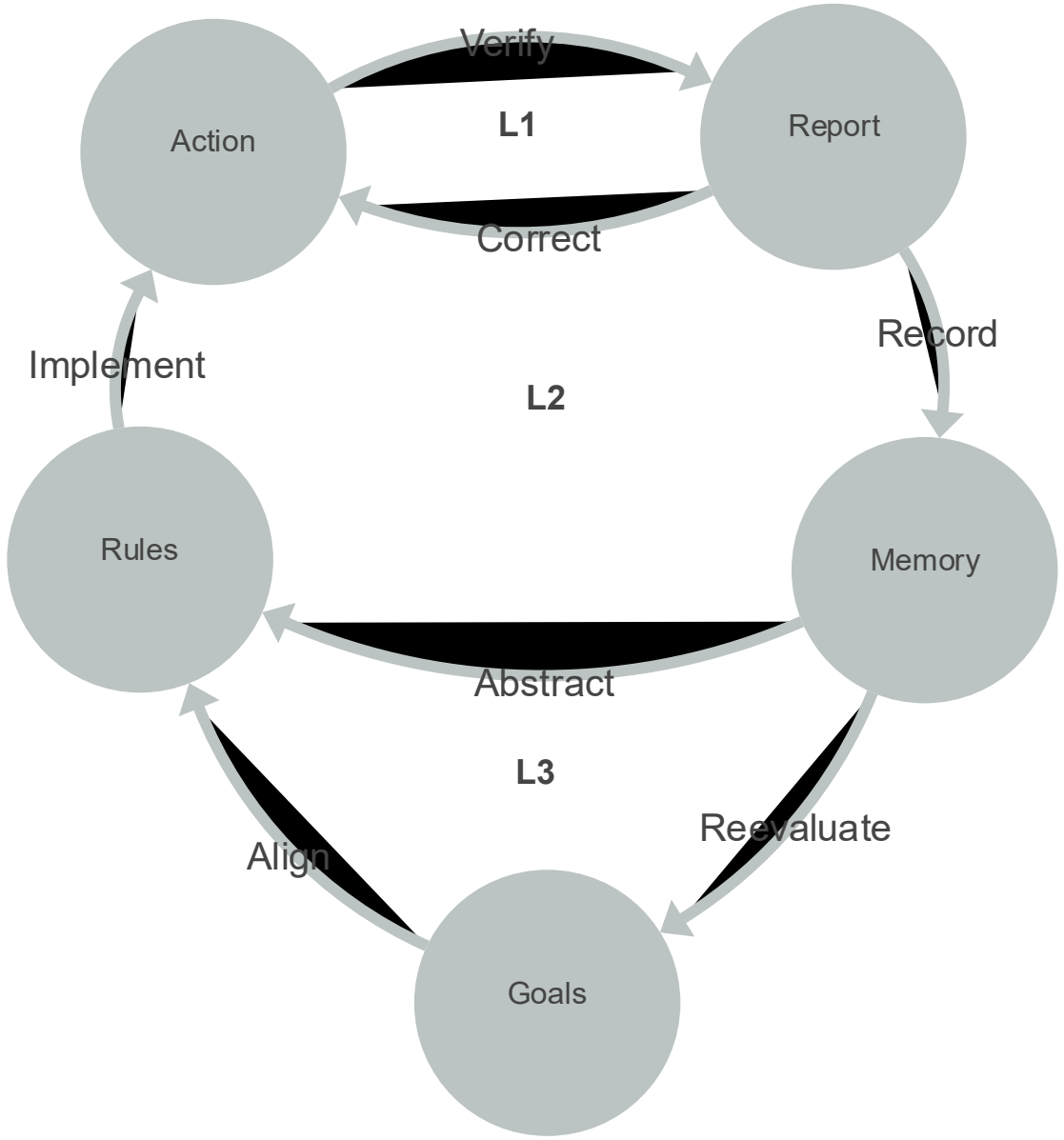


LEARNING AS LAYERED FEEDBACK LOOPS

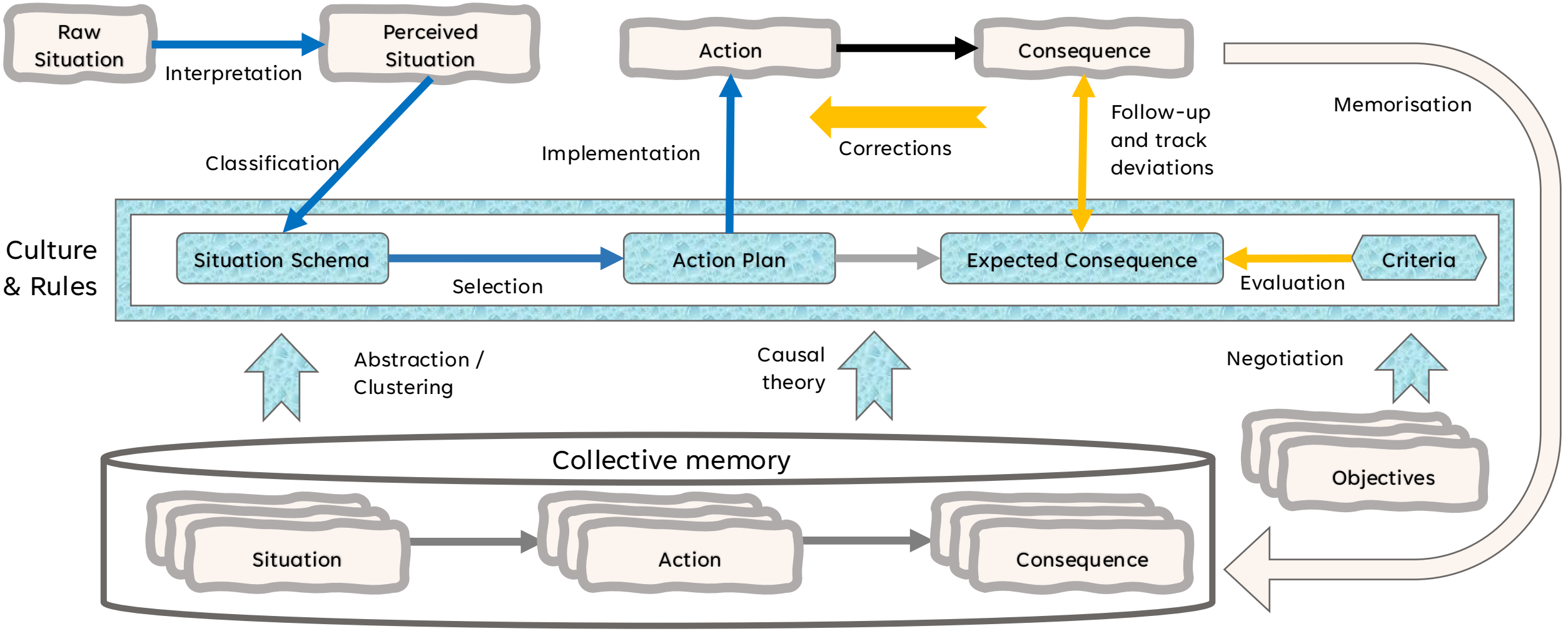
Figure 5: Triple Loop Learning and Reflective Practice



https://aodnetwork.ca/triple-loop-learning-moving-beyond-the-pale-of-the-institutional-limits, according to Flood & Romm, according to Bateson


Action
Verify
L1
Report
Correct
Record
Implement
L2
Rules
Memory
Abstract
L3
Reevaluate
Align
Goals

COLLECTIVE DECISION



ASSUMPTIONS OF THE RATIONAL DECISION MODEL

Accurate Knowledge

How much do we actually know about the possible options and probabilities? Do we know all side effects and feedback loops?

Cognitive Capacity

Even if the knowledge exists, how many different options can we think about?

Requisite Variety

Is the system's representational capacity adequate to its environment's complexity?

Objective alignment

Is the decision process actually aligned with the stated objective criteria?

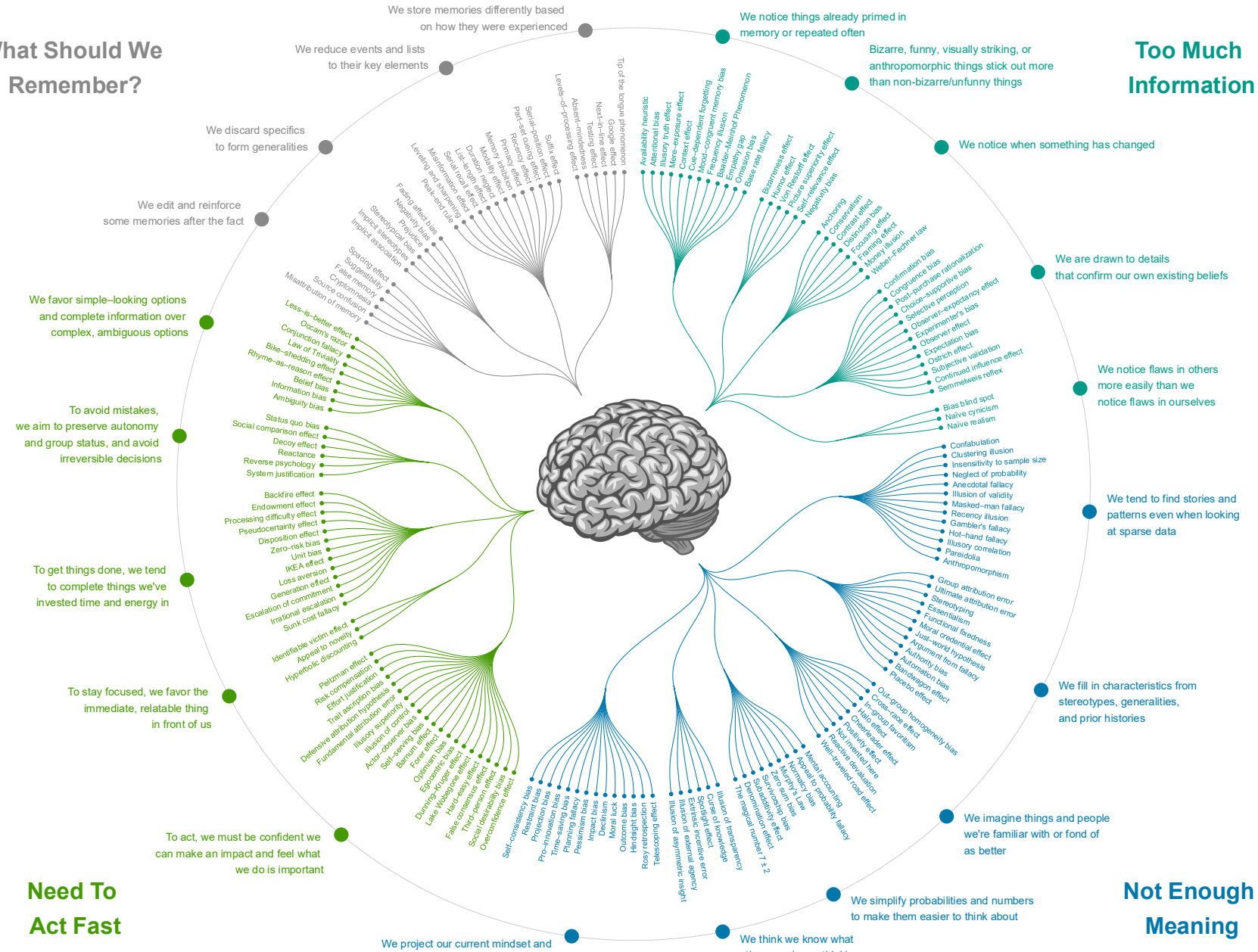
Stable causality regime

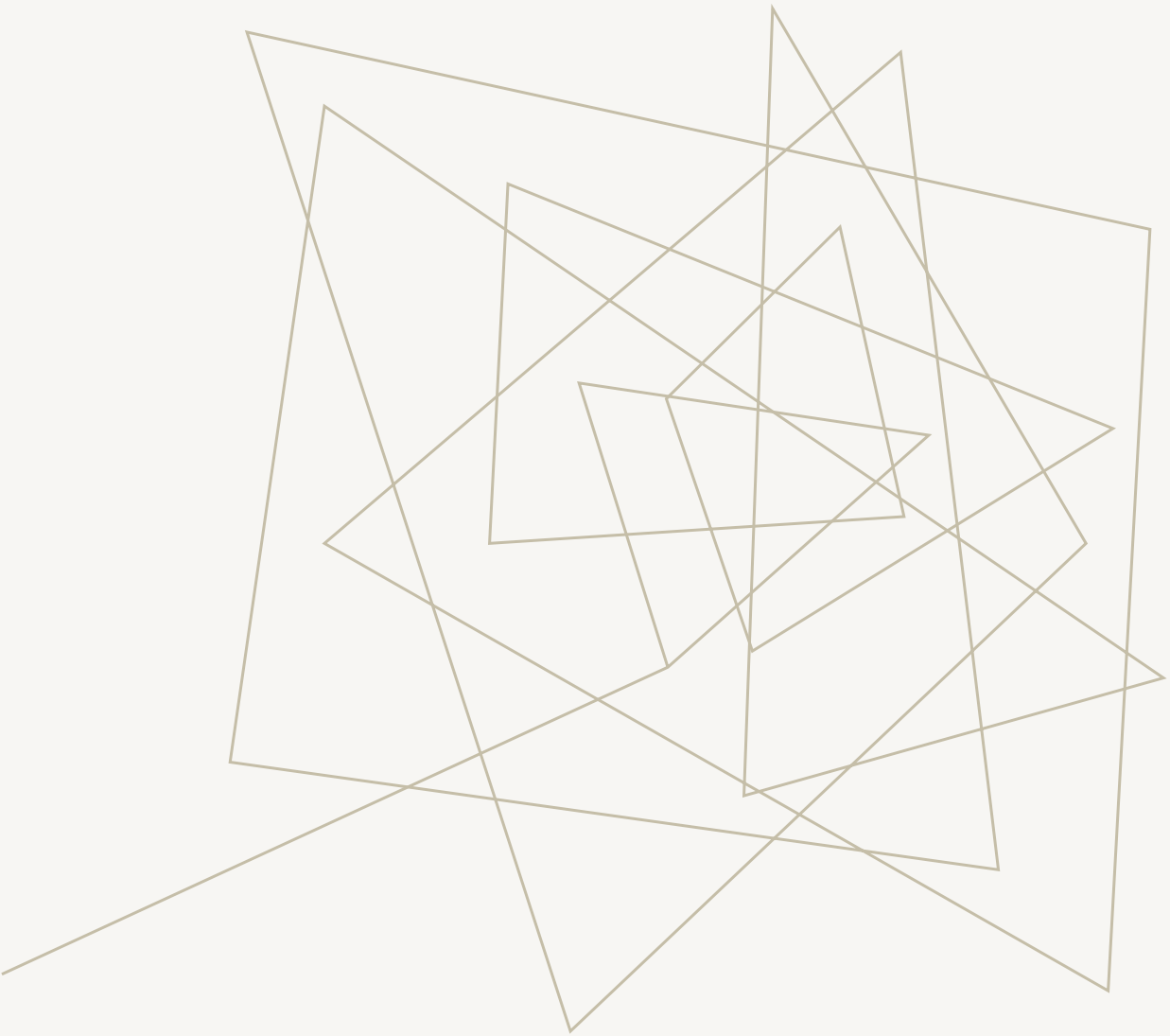
Are consequences mostly knowable from the actions?

Are we in a complex or chaotic causality regime? (cf. Cynefin)

Are we in an unprecedented situation? (Learning)

THE COGNITIVE BIAS CODEX





DEMOCRACY AS SOCIAL NEGOTIATION

COGNITION AS A SOCIAL PROCESS

- Under certain conditions, collective cognition is more accurate
  - Requisite variety vs group-think
  - Compatible goals vs polarization
  - Cognitive biases such as confirmation biases are valuable labour-sharing heuristics in collective cognition.
    Did evolution primarily optimize the latter?
- Enactive cognition: society as part of the thinking environment
- Verified in deliberative polling and citizen assemblies

INSTITUTIONS AS STEWARDS OF FEEDBACK LOOPS

- First loop: What are we doing
  - Bureaucracy for measurement
  - Police / judicial / auditors identify deviations
  - Journalists direct collective attention to deviations
- Second loop: Theory building
  - Scholarship / Science
  - Culture
- Third loop: Why are we doing this?
  - Public agora
  - (Counter-)Culture
  - Elections
- Fourth loop: Improving on the process
  - Political philosophy
  - Epistemology

CRITERIA: WHY THE INSTITUTIONS

- **Verification**
- **Deliberation**
- **Accountability**
- **Trust**
- **Accuracy**
- Alignment
- Cognitive Capacity
- Learning
- Learning Capacity
- Goal Coherence
- Representativity
- **Action Coherence**
- Expertise
- **Scalability**
- **Diversity**
- Equality
- Freedom
- Upwards Control
- Clarity
- Abstraction
- Approachability
- Connectedness

https://democracylevels.org/framework/

SCALING THE LEARNING PROCESS

- Learning loops have an overhead ∝ accumulated knowledge
- Trade-off between accuracy and cost of research (+ cognitive overhead)
- Trade-off between coherent policies and adapting to diverse concerns

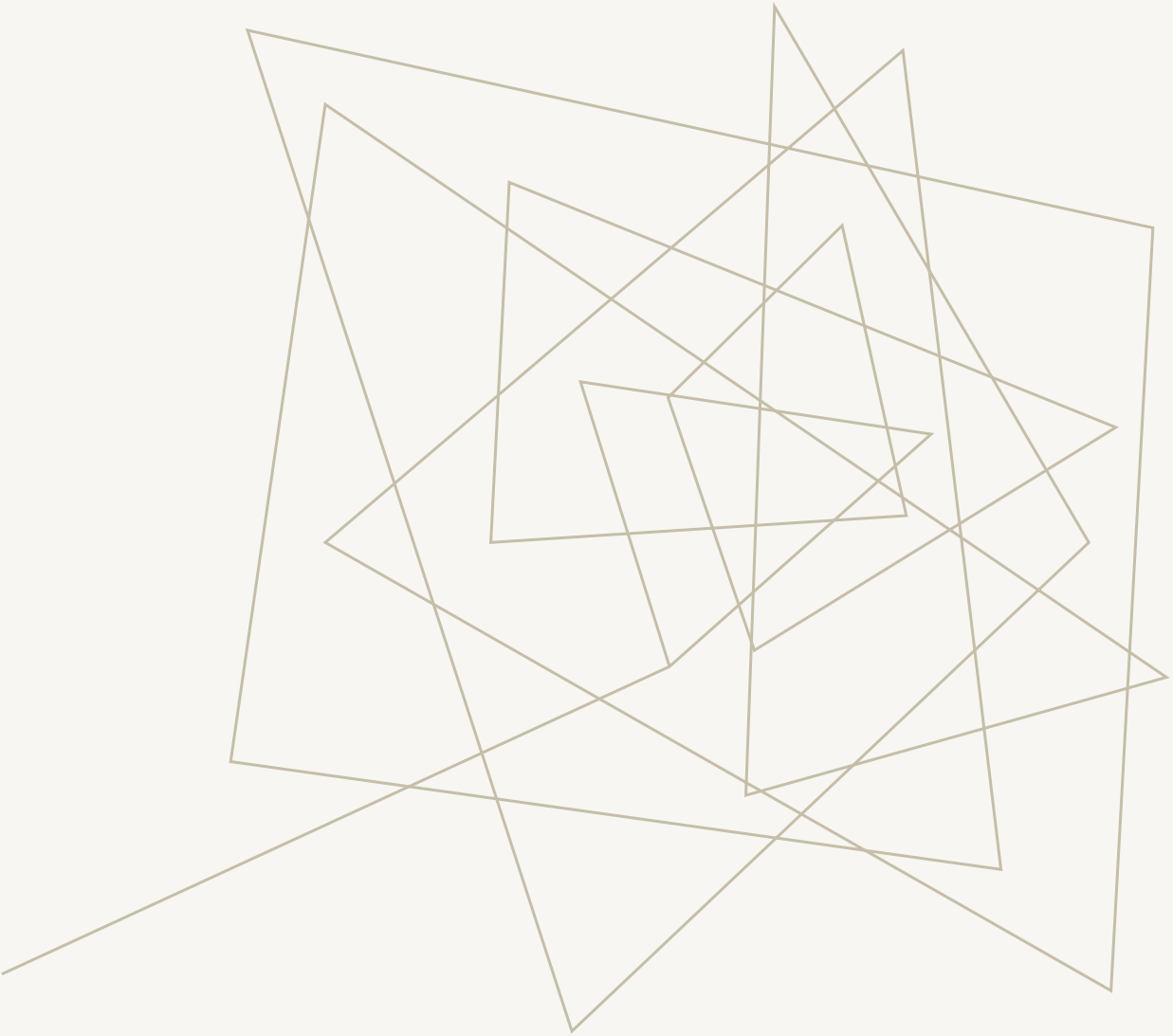
	Adaptable	Coherent	Accurate	Scalable
Atomized	++	--	-	++
Centralized	--	++	--	++
Technocratic	~	+	+	~
Dialogic	+	+	+	--

THE PARADOX OF COMPLEXITY

- Integrating diversity of PoV is necessary to respond to a complex world. (Ashby’s requisite diversity)
- It leads to complex and nuanced rules, that exceed individual cognition, and discourage participation
  - But participation is necessary to integrate diversity
- Temptation of simplistic rules and autocracy
- Temptation of a view from nowhere as a rallying point
  - Vs a pluralistic view that explicitly acknowledges the articulation of consensus with situated viewpoints

LEARNING IN THE LIFEWORLD

- Habermas: The System(atized) vs the LifeWorld
  - Socialization, Social Integration, Cultural Reproduction
  - Lines of lived transmission: Mentorship, Families, Culture…
  - Colonization of the LifeWorld by the system
- Political agonism: Communities in interaction
  - Identifying shared goals for conflict resolution
  - Rawls: The evolution of overlapping consensus



AI AS A COORDINATION MECHANISM

GENERATIVE AI AS COMPRESSED HISTORY

- Access to a gigantic corpus (through lossy compression)
- Automated abstraction through statistics
- Mostly works at level of linguistic concepts

- Gives access to a considerable shared memory

THE BLACK BOX PROBLEM

- Unreliable introspection
  - Comparable to human introspection?
- Explainable AI in terms of proximate causes
- Hidden biases
  - In the original corpus
  - In the training process
  - In the post-training instructions
- Biases are already being weaponized

GENERAL AND SPECIFIC KNOWLEDGE

- Decision requires working to acquire generic and specific knowledge
- Generic knowledge becomes a common good
- “Free” access to specific knowledge destroys the incentive to produce generic knowledge
- Accurate-enough AI can improve personal decisions, but lead to a state of collapse of the stock of general knowledge

HUMAN REACTIONS TO AI

- Attribution of intentionality
  - From Thunder gods to Eliza to ChatGPT
- Illusion of Authoritativeness through fluency and pseudo-neutrality
- Sycophancy as a Service
  - Psychological dependency
  - Amplifies confirmation bias
- Human-in-the-loop
  - Checking is not less difficult than thinking
  - Reverse centaurs as moral crumple zone
  - Cognitive degradation

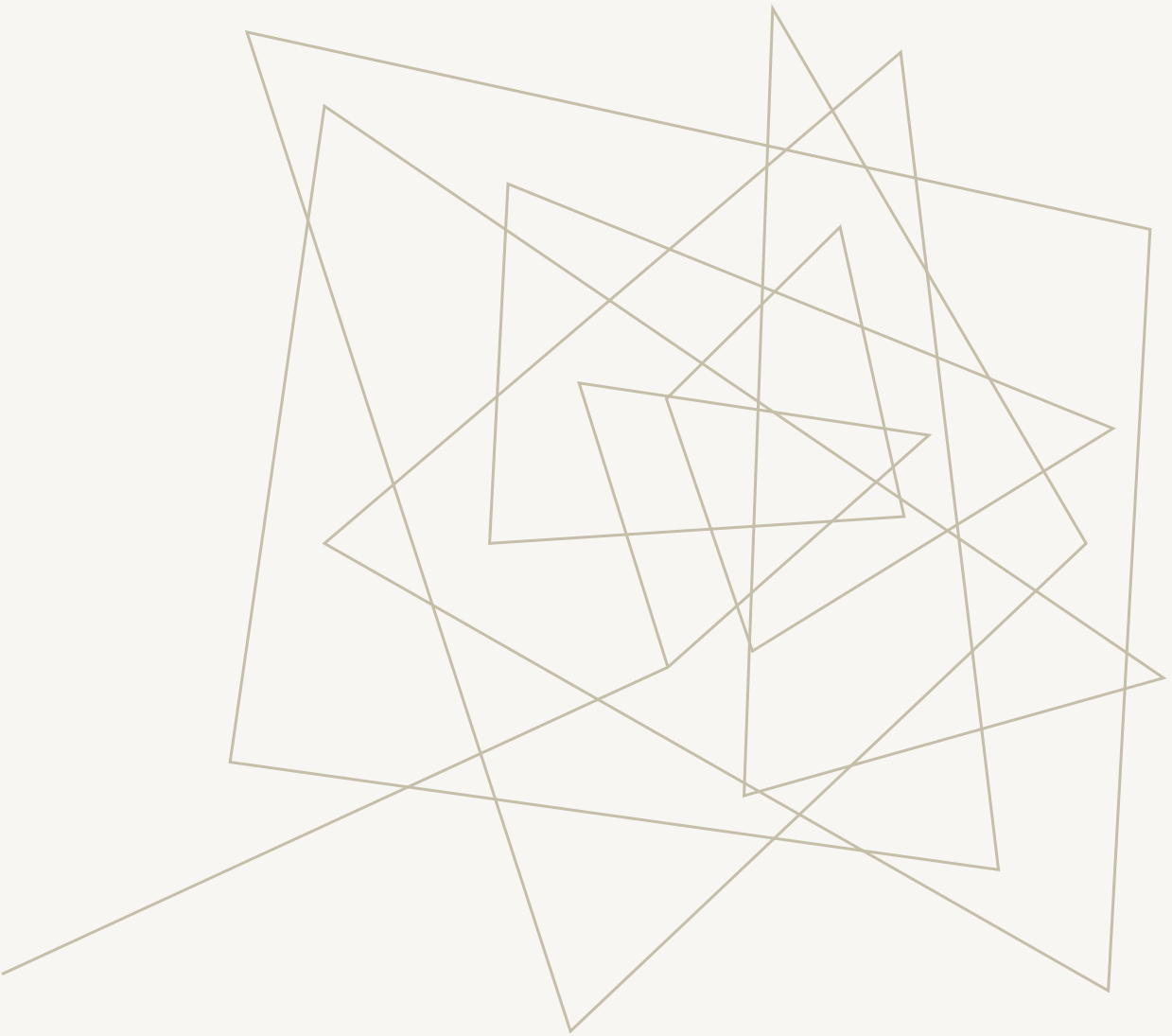
HIJACKING THE LEARNING LOOPS

- The basis of the conversation:
  - Verification: We cannot verify a black box
  - Deliberation: Artificial man in the middle
  - Accountability: Accountability sink
  - Diversity: Ungrounded, view from nowhere
- Impact on social learning
  - Generative AI's learning stops after training, preventing cultural iteration
  - Outcome of conversations with AI is either lost or captured (ToS)
- Impact on trust
  - Are the ideas coming from you? If not, whose interest are they serving?
  - AI-powered bubbles

WHOSE CONVERSATION?

- Eschatology as a distraction from an authoritarian coup
- Generative AI and labour power dynamics
- Enclosure of the knowledge commons
- Explicit links to TESCREAL and autocratic projects
- Bare minimum of representative democracy:
  When can we vote out an AI?
  Or deliberate on its role in the process?

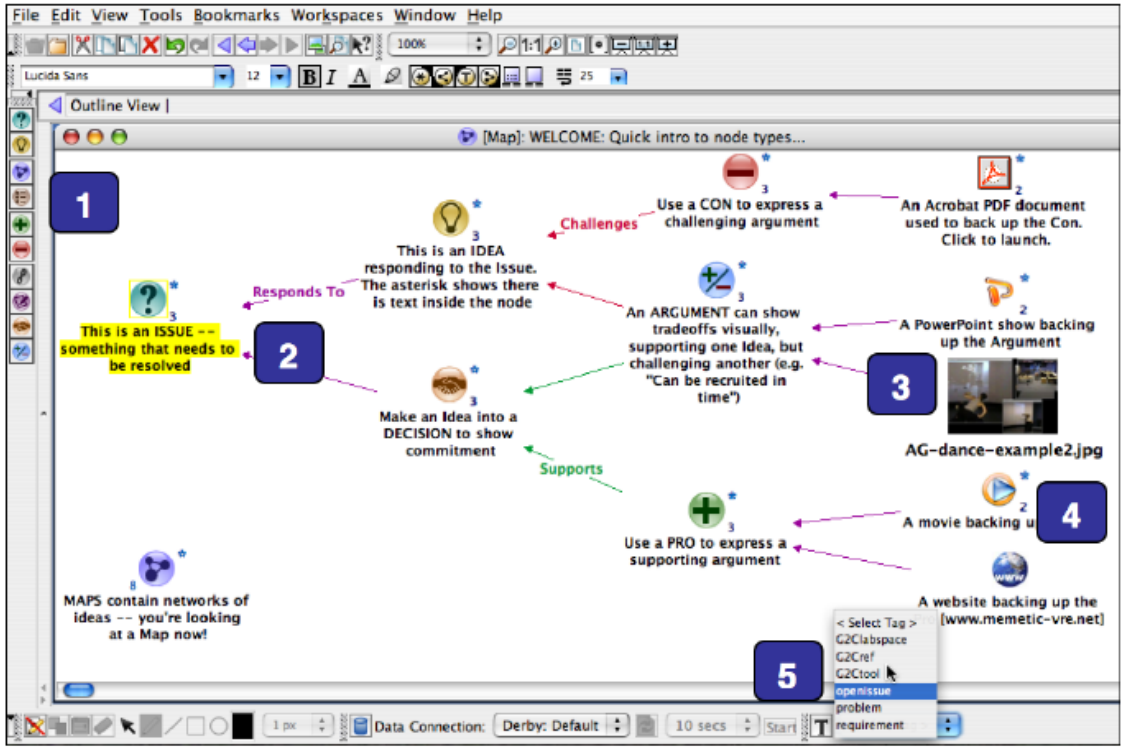
https://www.dair-institute.org/projects/tescreal/



STRUCTURED CONVERSATIONS:
A step to an Augmented Collective Intelligence

HISTORY OF STRUCTURED CONVERSATIONS

- Technical languages
- Formal logics
- Dialogue mapping
  - Works well with a live cartographer
  - Helps defuse personal hostility
  - Overwhelmed without curation, offline



WHY STRUCTURED?

- Deduplication
  - Reduces cognitive footprint
  - Avoids vote splitting
- Ideas can be compared
  - Lattice (Formal Concept Analysis)
- Ideas can be composed
- Fractal views
  - Allows to focus attention

STRUCTURED *AND* PERSONAL *AND* SOCIAL

- Progressive formalization
  - Keep link between abstraction and concrete experiences
  - Choral explanations
- Negotiated sense-making
  - Disputed interpretations
  - vs Knowledge Graphs' attempts at reaching neutral truth
- Continuously throughout the social learning loop!

ROLES FOR OPEN HYBRID AI

Hybrid: The knowledge base can be a subject of deliberation
Open: allowing for public scrutiny of the whole process

- Translation : Across specialized vocabularies
- Approachability : Help people approach formalized knowledge
- Mentoring : help people make their thought more precise

With heavy supervision:

- Surface inconsistencies
- Synthesis across many contributions
- Connect complex synthesis with situated views

REQUIREMENTS FOR TRANSPARENCY

- Curated maps for intelligibility
  - With alternatives and computed neighbourhoods
- Transparent algorithms
  - Ordering
  - Moderation
- Coherence markers
- Provenance
  - Mark black-box input

REQUIREMENTS FOR ADOPTION

- ANTI-GOAL: One schema to rule them all!
- Evolutive negotiated vocabularies
- Federated architecture
- Emphasis on pedagogy

PAST AND CURRENT PROJECTS

- IdeaLoom.org : Earlier work on an idea sharing and clustering workbench
  - First attempt at an exchange format for collective intelligence
  - From flow to stocks, progressive formalization
- HyperKnowledge.org : Federated knowledge negotiation architecture
  - For evolving ideas
- SenseCraft.garden: coopetitive game to build a structured conversation
- ClaimMiner.info : identification of discourse patterns in text
- DiscourseGraphs.com : Structured conversations for research teams

AN AUGMENTED SOCIAL LEARNING LOOP

- Instead of AI improving AI...
- Social cognition improving social cognition processes (4th loop)
- In full transparency
- With black boxes only helping at the process margins
- This may require rethinking our language of collaboration
- Co-building an ecosystem of tools to augment collective intelligence
- Join us!

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REFERENCES (GRAB BAG...)

https://www.conversence.com/ai_reading_list.html