Journal of the International Society for the Systems Sciences | 68th Meeting of the International Society for the Systems Sciences
Wilby, J., Makar, J. and Friend, M. (eds)

AN APPLICATION OF AL-RABBANI PHILOSOPHY IN SCIENCE: HUMAN'S SENTIENT COGNITIVE ORGANISM INTELLIGENCE IMPACT ON ANTHROPOCENE CHAOS

Haider Al-Shareefy
ISSS Science, Spirituality and Systems Science Research Group
haideralshareefy@outlook.com

Saad Naser
Aldaae Research Center
ISSS Science, Spirituality and Systems Science Research Group
secretary.general@aldaae.org

Abdullah Al-Marsomi
Aldaae Research Center
ISSS Science, Spirituality and Systems Science Research Group
founder@aldaae.org

Abstract
We appreciate the impact of how the mentality behind humans' cognitive inference methods and interpretation of perceived information on addressing the chaotic effects of the Anthropocene era. Our research, deeply influenced by Al-Rabbani's philosophy, explores the hypothesis that enhancing individual human awareness of the type of purpose (that they are pursuing) behind their semantic inference processes could serve as a critical intervention point to address the enormous, complex global challenges of the Anthropocene. The study proposes a potential framework for understanding human cognitive processes as systems of communicating living cells capable of learning and functioning as sentient entities. The study's concepts are not just influenced, but enriched by Al-Rabbani's philosophy, offering a novel perspective on the relationship between the human mind and the natural universe. We hypothesise the presence of a singular cognitive process (we view cognitive processes as living organisms) in the human intelligence system that rules over and uses all cognitive processes in the brain. We call it "Al-Fitrah" or "the Sentient Sole Cognitive Organism". By exploring the interaction of these cognitive organisms with inferred meanings, the model aims to uncover methods that can optimise decision-making and foster global harmony. Part of this hypothesis is supported by the extensive literature on societal influence, personal perception, cognitive frameworks, mental models, predictive thinking, and metacognitive methods.

Keywords
Systems Thinking, Anthropocene, Human Cognitive Processes, Al-Rabbani Natural Philosophy, Al-Fitrah

1. Introduction & Problem Definition
The multifaceted global challenges of the Anthropocene era—spanning environmental degradation, socio-political turmoil, and economic imbalances—necessitate an in-depth understanding of their origins to devise effective solutions. This research posits that these macro-scale issues stem from a fundamental discord in how human intelligence processes and interprets meaning. The premise is that individual cognitive processes, shaped by personal experiences and societal norms, drive collective human actions, exacerbating global challenges.

Central to this discourse is the role of human cognition in interpreting information and events. This paper argues that the root of global challenges lies in humanity's collective actions, influenced by individual decisions driven by perceptions and experiences. These individual perceptions, often shaped by cultural, educational, and personal backgrounds, can distort reality, leading to collective behaviours that amplify these global issues. Thus, understanding and optimising individual mental paradigms is critical for interpreting environmental information accurately.

The initial step in forming any mental paradigm is interpreting information. Humans must translate perceived information into actions, decisions, and materials that convey their mental paradigms. This research seeks to redefine human cognition by proposing a novel framework based on Al-Rabbani's philosophy. This framework conceptualises human cognitive processes as systems of communicating living cells, or "sentient cognitive organisms," capable of learning and functioning as singular, sentient entities.

The study introduces the concept of "Al-Fitrah" or the "Sentient Sole Cognitive Organism," which is hypothesised as the primary cognitive process governing all other cognitive functions in the brain. The research aims to identify methods that optimise decision-making and foster global harmony by exploring the interactions between these cognitive organisms and inferred meanings. This hypothesis is supported by extensive literature on societal influence, personal perception, cognitive frameworks, mental models, predictive thinking, and metacognitive methods.

This research thus seeks to address the following problem: How can enhancing individual awareness of the purposes behind their semantic inference processes serve as a critical intervention point to tackle the complex global challenges of the Anthropocene? The proposed solution involves reinterpreting established scientific literature and cross-disciplinary ideas to develop an ideal mental paradigm that ensures individual harmony and, by extension, global stability. This redefinition includes innovative methods for reading and writing that influence cognitive processes and decision-making.

2. Literature review

We base our framework on a number of premises taken from work done in the literature. The following are the main premises and the associated evidence to support the premise from established research and studies:

2.1. Premise 1: Societal Influence on Collective Human Actions

Global challenges result from collective human actions influenced by societal norms and policies. Extensive research supports the premise that societal norms and policies significantly influence collective human actions. For instance, the study by Ostrom elucidates how social norms can enable or constrain collective action in managing common-pool resources, which directly relates to environmental challenges (Ostrom, 2000). Similarly, political and economic policies have been shown to shape societal responses to economic imbalances, as Acemoglu and Robinson detailed in their exploration of how institutions influence economic outcomes (Zamagni, 2012).

2.2. Premise 2: The Role of Personal Perception in Shaping Human Actions

Human actions are shaped by individual decisions, which are, in turn, influenced by personal perceptions and experiences. The influence of individual decisions on global phenomena is also well-documented. Kahneman and Tversky's seminal work on the impact of personal biases and heuristics on decision-making provides a psychological basis for understanding how personal perceptions can lead to significant economic and environmental (Tversky & Kahneman, 1974). This body of work underscores how individual cognitive biases, shaped by cultural and educational backgrounds, distort perceptions of reality. It is well-documented in cognitive psychology that personal experiences, culture, and education deeply influence individual perceptions and decisions. These perceptions, while subjective, shape our understanding of reality and inform our actions within it.

2.1. Premise 3: Cognitive Frameworks and Predictive Decision-Making

The decision-making process, as influenced by individual mental paradigms, is a central theme in cognitive research. Gigerenzer's work on fast and frugal heuristics illustrates how mental models shape our predictions and decisions, impacting global socio-economic structures profoundly (Gigerenzer, 2004). This research underscores the importance of understanding the cognitive underpinnings of human behaviour to address global challenges effectively.

2.2. Premise 4: Mental models are informational concepts the human brain generates through cognitive processes.

Cognitive psychology and neuroscience support the concept of "mental models" as informational constructs formed by cognitive processes in the human brain. Mental models are frameworks that individuals use to understand, predict, and infer information about various aspects of the world. Research in cognitive psychology suggests that the brain constructs mental models to simplify understanding by creating a working simulation of reality.

Key Brain Regions Involved:

- **Prefrontal Cortex (PFC)**: The PFC is crucial for higher cognitive functions, including planning, decision-making, problem-solving, and reasoning. It plays a central role in forming and utilising mental models. This brain area integrates sensory data with stored memories, essential for constructing mental models (Barbey & al., 2012). This study highlights the role of the prefrontal cortex in integrating and processing information essential for constructing mental models used in general intelligence and reasoning.
- **Hippocampus**: Known primarily for its roles in memory formation and spatial navigation, the hippocampus compares incoming information with stored knowledge, which is critical for updating and maintaining mental models (Eichenbaum, 2017). This paper discusses the interaction between the hippocampus and the prefrontal cortex in the context of episodic memory and situational interpretation and mechanisms central to forming and applying mental models.
- **Temporal Lobes**: These areas are essential for processing sensory input and are crucial in forming detailed memories that are not strictly reliant on facts but include an understanding of context and concepts, which are essential components of mental models (Squire & al., 2004).

These studies collectively demonstrate that mental models are supported by a network of brain regions, primarily involving the prefrontal cortex, hippocampus, and temporal lobes. Each contributes to the generation, maintenance, and application of these cognitive constructs, which are aspects related to the manipulation of information.

2.3. Premise 5: The brain's cognitive predictive thinking (brain as a predictive machine) is influenced by cognitive inference methods (the way a human brain infers a prediction from perceiving a natural phenomenon and a learned existing mental paradigm choice to interpret the natural phenomenon)

We base our framework on the premise that the concept of the brain as a predictive machine influenced by cognitive inference methods integrates ideas from predictive coding and Bayesian brain theories. These theories propose that the brain constantly generates and updates predictions about the environment based on incoming sensory information and prior experiences. Here is a detailed overview of the scientific backing for this claim, including the relevant brain regions and references to key research papers:

Key Brain Regions Involved:

- **Prefrontal Cortex (PFC)**: The PFC is known for its role in executive functions and is crucial in hypothesising and revising mental models as part of the brain’s predictive machinery. It helps generate expectations and plans based on predictions about future events (Clark, 2013). This paper provides a comprehensive overview of the predictive processing framework, discussing how the brain uses past experiences to generate predictions about future sensory input.
- **Anterior Cingulate Cortex (ACC)**: The ACC is involved in error monitoring and plays a crucial role in predictive coding by signalling when outcomes do not match predictions, which is crucial for updating predictions and learning from new experiences (Seth, 2013). This article discusses how the brain's predictions are influenced by interoceptive (internal bodily) signals and how this relates to emotion and the experience of self, demonstrating the role of the insular cortex in predictive processing.

- **Insular Cortex**: This region is pivotal in integrating sensory information with emotional salience, contributing to how predictions are emotionally weighted and how discrepancies between expected and received sensory input are processed (Shipp, 2016). This review elaborates on the neural circuits involved in predictive coding, particularly focusing on the roles of the PFC and ACC in generating and updating predictions based on sensory input and cognitive inference.

These studies underline the brain's function as a predictive machine influenced by cognitive inference methods. The predictive coding framework is supported by PFC, ACC, and insular cortex activities, each playing a distinct role in how predictions are generated, updated, and emotionally integrated based on the interplay of perceived natural phenomena and learned mental paradigms.

2.4. Premise 6: Cognitive Inference Methods are designed and controlled by Metecogntive methods (Meta-mentality)

We build our understanding on the premise that cognitive inference methods in the human brain involve meta-mentality methods underpinning their structure, which is supported by research on metacognition. Metacognition is the awareness and regulation of one's cognitive processes and is critical in creative thinking. The interplay between metacognitive knowledge, experience, and monitoring is essential for guiding cognitive strategies, facilitating creativity, and ensuring effective problem-solving. This meta-level cognitive awareness helps in planning, monitoring, and evaluating cognitive tasks, thereby influencing cognitive inference methods and their underlying mentality (Jia, Li, & Cao, 2019).

2.5. Premise 7: The concept of Al-Fitrah as defined in Al-Rabbani Natural Philosophy

"Rabbani" is generally an Arabic term that refers to a person who possesses the experience and intellectual wisdom to educate someone on a skill or capability. A person is a "Rabbani" in a skill. The philosophy of Al-Rabbani was first introduced by a linguist and Arabic language teacher named Mr Fadhil Al-Marsomi, who was also an Arabic natural philosopher and scholar. The philosophy aimed to provide a general definition of the inherent relationship between humans and nature in a socio-technical environment and the overall purpose of human beings as super intelligent systems. Today, Al-Rabbani's philosophy can be redefined as a General Cybernetic model that is related to the understanding and augmentation of human intelligence and governance. Our paper is the first introduction and application of Al-Rabbani Philosophy to the science community. Therefore, there will be no

In Al-Rabbani's philosophy, A human intelligence system can not be understood in isolation from the informational fabric of the universe, and thus it has three major intelligent cores:

- **Al-Fitrah Core:** a singular sentient intelligent cognitive process (organism) that exists in the foundational layer of the human intelligence system. Human's Fitrah can be described as *"sole"* or *"singular"* and a stand-alone, sentient being, separate from all cognitive processes. It is the identity of the host human. A human's Fitrah can manipulate its relationship with the rest of the brain, giving it the power of agency or choice. Every human on earth has a Fitrah, which operates indefinitely with a single primary purpose of surviving in any environment (regardless of what it is). This means it has to be able to sense its presence, maintain sustenance methods, and always be certain of its understanding of its environment (regardless of what it is) to handle the variety of possible encounters with its environment. It needs to see, hear, taste, smell, and touch to do so. Al-Fitrah has a physical embodiment (a system of countable neurons) but an emergent super intelligence. Its physical embodiment is hosted by the physical body of the carrying human.
- **Brain-driven Mind Core:** A stand-alone sentient being that sets its own purpose in relation to the Fitrah Core and the informational fabric of the universe core. The human mind has two major, orthogonal, separated in purpose and goals intelligent cores:
    - **The Finite Intelligence Core:** This intelligence core only cares about (or worships) the finite surrounding environment (physical or information about the physical universe). It seeks to discover the perfect mental model of the physical world to increase the chances of

the physical side of the human to survive for as long as possible (ideally forever) in the physical world. Because of the materialistic nature of the Finite Intelligence Core, it attempts to dominate Al-Fitrah's purpose of focusing on surviving the physical world for as long as possible, using all physical and informational means possible. Therefore, it has a single purpose which is to reinforce human Fitrah to enhance its 5-physical senses (hearing, seeing, touching, tasting, smelling) in order to increase its chances to survive physically without any distraction by

  - **The Infinite-Intelligence Core:** It is an intelligence core that only cares about infinity and abstract existence in an abstract infinite universe. It is intelligent enough to infer realities beyond the physical reality and can be attached to the infinite aspect of the universe at the informational level. In other words, it has a single primary purpose: to ensure Al-Fitrah's growth by caring sole (Al-Fitrah)ly about the abstract infinite presence of the meaning-information beyond the word-informational representation of the physical world. Whereby the physical world is nothing but a means to develop and hone Fitrah's meta-physical interaction skills (after-sight, after-hearing, after-taste, after-smell, after-touch)

- **Latent intelligence core from the Informational fabric of the physical universe:** Quantum mechanics tell us a story of an informational universe behind the physical view of the universe. Al-Rabbani's philosophy takes that into consideration when it makes sense of human intelligence. The philosophy view that everything in the natural surroundings of al-Fitrah is an informational cup filled with two types of meanings:
  - A finite physical meaning.
  - An infinite after-meaning.

Al-Fitrah has a choice, either to (analogically) drink the finite physical meaning and nourish its constant need (develop its own intelligence and meta-skills to survive) to validate its sense of infinite survivability. Alternatively, it can nourish its needs to ensure certainty of living forever by seeking to experience the infinite after-meaning in all physical information that comes to its 5 senses. In our research, we will focus only on validating and articulating the presence of Al-Fitrah as a singular cognitive organism in human intelligence systems. In the future, we will examine and explore the rest of Al-Rabbani's definition of the human intelligence system.

3. Preliminary causal articulation of the problem:

By studying the research above, we came up with an understanding of how the above research can be integrated to draw a mental model of how a human mind may work, as described in Exhibit 1. The model suggests a feedback loop where individual actions, driven by predictive decision-making and influenced by cognitive inference methods and mental paradigms, contribute to collective human behaviour, influencing the state of the Anthropocene. The focus is on the critical role of individual cognitive processes in shaping broader environmental outcomes. Information available in a single natural observation is fed to Individual human brain cognitive inference methods. Those methods rely on comparing the fed information through the five sensor-perception systems of humans to the adapted mental paradigm of the world. The mental paradigm adopted by the human brain provides a general set of abstract definitions of and abstract rules of interactions, which could potentially lead to making predictions. The brain cognitive inference methods follow an abstract general method of inference, which is controlled by the mentality of a sentient intelligent core outside the sentient identity mind of the individual, which is a sentient intelligent core. The individual sentient cognitive inference methods influence the predictive decision-making capability, which drives and influences the individual's day-to-day actions. A collection of human day-to-day actions of the whole world directly impacts the Anthropocene chaos.

The chaos in the environment is then feedback into the individual cognitive processes, affecting the balance and the harmony of its state, which in turn affects the type of decisions made. The potential cognitive-behavioural model that connects individual cognitive processes with collective human actions and their impact on the Anthropocene consists of the following concepts:

3.1. Hypothesis definition

The proposed hypothesis suggests that cognitive processes are systems of communicating living cells, functioning as "Individual Cognitive Organisms," capable of learning and thus potentially qualifying as "Learning Sentients." This system includes a singular, complex entity termed the "Sentient Cognitive Cyber Organism Sole (Al-Fitrah)" or "Sentient Sole (Al-Fitrah)", characterised by superior intelligence. The Sentient Sole (Al-Fitrah) is the primary cognitive singular process that controls all of the cognitive processes in the human brain. The being must live in a completely predictable environment (regardless of the environment). The hypothesis posits that understanding the nature and interaction of the Sentient Sole (Al-Fitrah) with inferred meanings can lead to optimal cognitive methods whereby the host human can guarantee an infinite sense of safety with minimal physical requirements from its surrounding environment, thus enhancing day-to-day decision-making and promoting global harmony.

3.2. Model Description

Exhibit 1 depicts a multi-layered cognitive framework where different elements interact to form a cohesive understanding of human cognitive processes. Each concept within the diagram contributes to a comprehensive model of cognitive functioning. The following sections detail the core elements and their interrelationships.

Elements of the Model

A. **Anthropocene Chaos**: This represents the unpredictable and chaotic conditions of the current geological age, heavily influenced by human activity. It serves as the source of surrounding environmental information.
B. **Collective Humans' Day-to-Day Actions**: Actions taken by groups of humans, driven by societal norms and policies, which collectively contribute to global challenges and influence the surrounding environment.
C. **Individual Humans' Day-to-Day Physical Motor Actions**: The direct physical actions performed by individuals, driven by their biases, perceptions, and predictive decision-making processes.
D. **Individual Humans' Biases, Perception, and Predictive Decision-Making Processes**: Cognitive processes that influence individual actions based on personal experiences, cultural background, and inherent biases.
E. **Individual Humans' Cognitive Inference System (Translator)**: The internal system that interprets sensory information and translates it into meaningful data through cognitive inference methods.
F. **Mentality Underpinning the Method of Inference**: Metacognitive methods that govern how cognitive inference is performed, including awareness and regulation of one's cognitive processes.
G. **Foundational Mental Models (Paradigm)**: Abstract general axioms and paradigms that form the basis for understanding and predicting information. These models are chosen and influenced by individual cognitive processes.
H. **5 In-Senses (Meta-Physical Senses)**: The main senses that the Sentient Sole (Al-Fitrah) aims to enhance its capability when interacting with “meaning”. Higher-level (intelligence) perception capabilities beyond traditional senses, including In-sight, In-hearing, In-touch, In-taste, and In-smell. These are conceptualised as "After-Senses" to denote their advanced interpretative functions.
I. **Surrounding Environmental Information**: The external environmental stimuli and information that influence cognitive processes and decision-making.
J. **Meaning**: The inferred and interpreted significance of information, which is processed at a meta-cognitive level. It is the mana that the Sentient Sole (Al-Fitrah) understands only and nothing else.
K. **5 Physical Senses**: The traditional senses (sight, hearing, touch, taste, smell) that feed information to the cognitive system.
L. **Sentient Cognitive Cyber Organism (Sentient Sole (Al-Fitrah))**: A hypothesised super-intelligent cognitive entity within humans, representing self-identity and capable of advanced learning and decision-making.

M. **Meta-Cognitive Methods**: Higher-level cognitive strategies that regulate and guide cognitive processes, ensuring effective problem-solving and creativity.

Interactions and Processes

- **Source and Observation**: Anthropocene chaos influences the surrounding environmental information, which is observed through the five physical senses. This information is processed by the cognitive inference system.
- **Decision-Making**: Individual actions, driven by biases and perceptions, contribute to collective human actions. These actions, in turn, drive day-to-day physical motor actions and write words that shape the environment.
- **Meta-Cognitive Feedback Loop**: The cognitive inference system translates sensory data into meaning-information, which feeds back into the formation of mental models and paradigms. Metacognitive methods regulate this process, ensuring that the information is continually updated and refined.
- **Threshold of Awareness**: There is a distinction between the level of cognition (where information is processed as words) and meta-cognition (where information is processed as meaning). The threshold of awareness separates these levels, highlighting the complexity of cognitive processes.
- **Meta-Skills Acquisition**: The model hypothesises the need for acquiring deep cognitive skills to understand the nature of the Sentient Sole (Al-Fitrah) and its interaction with inferred meanings. This understanding can lead to improved cognitive methods, enhancing safety and decision-making.

4. Evaluation of evidence against our initial hypothesis model

We took the research in various cognitive sciences and proposed a novel hypothesis that integrates and explains how they fit all together. Our proposal of “Sentient Sole (Al-Fitrah)”, the singular cognitive living organism with emergent super intelligence, frames the research findings through a new lens. Mapping the gathered literature to the hypothesis model elucidates how societal norms and individual cognitive processes collectively influence the Anthropocene. Ostrom's research on collective action (Ostrom, 2000) parallels the model's emphasis on collective human actions, demonstrating how social constructs drive environmental impact. Kahneman and Tversky's insights into decision-making (Tversky & Kahneman, 1974) reflect the model's individual day-to-day actions shaped by cognitive biases.

Cognitive neuroscience provides a neurobiological underpinning to the model's individual predictive decision-making capability through the role of the PFC, hippocampus, and temporal lobes in mental model formation and maintenance (Barbey al., 2012; H., 2017; Squire al., 2004). These regions are integral to processing sensory input and abstract definitions/rules, which align with the mental paradigms proposed in the model. The concept of the brain as a predictive machine (Clark, 2013; Seth, 2013; Shipp, 2016) underpins the model's 'Individual Brain Cognitive Inference Methods.' The PFC, ACC, and insular cortex's role in this process supports the model's portrayal of cognitive inference methods as central to predicting and making decisions based on environmental observations and internalised paradigms. The literature confirms the model's portrayal of a feedback loop where individual cognition, through mental paradigms and predictive processing, influences and is influenced by the collective state, thereby shaping the Anthropocene. To map the evidence from the literature review to the hypothesis model concerning the Anthropocene, we systematically align the gathered research findings with the model's concepts:

1. **Anthropocene Chaos**: Ostrom (2000) provides empirical evidence on how human-environment interactions, governed by societal norms, can escalate to global environmental changes, underscoring the Anthropocene chaos concept.
2. **Collective Human Actions**: Acemoglu and Robinson (2012) describe how collective actions are shaped by institutions, supporting the idea that humanity's collective actions are a major contributor to the Anthropocene chaos.
3. **Individual Human Day-to-Day Actions**: Kahneman and Tversky (1974) discuss how personal biases influence decisions, which accumulate as day-to-day actions affecting global outcomes.

4. **Individual Predictive Decision-Making Capability**: Gigerenzer (2004) explores how heuristics are employed in decision-making, reinforcing the model's focus on predictive capabilities at an individual level.
5. **Individual Brain Cognitive Inference Methods**: Clark (2013) offers a broad view of the predictive processing framework, evidencing the brain's role in cognitive inference, while Shipp (2016) provides specifics on the neural circuits involved.
6. **Mentality behind Inference Methods Choice**: Seth (2013) provides insights into how interoceptive signals influence the brain's predictive coding, highlighting the underlying 'mentality' influencing inference methods.
7. **Individual Mental Paradigm Choice**: The provided literature does not explicitly cover this topic; however, Barbey et al. (2012) suggest that individual mental paradigms can influence the PFC's role in integrating information. We need to investigate this aspect further.
8. **Information Available in a Single Natural Observation**: This concept relates to the availability of information in every system in the universe. We still need to back this concept with more rigorous research.
9. **General Abstract Definitions and Rules**: Barbey et al. (2012) discuss how the PFC processes abstract information, which could be the basis for general definitions and rules within mental models.

For concepts lacking direct empirical backing, for example, the "Sentient Sole (Al-Fitrah)" hypothesis, a further literature search is necessary to find scientific studies that specifically target those areas of the model.

5. Research initial results and summary

The initial results aim to evaluate the viability of the "Sentient Sole (Al-Fitrah): Cognitive Cyber Organism" hypothesis within the context of influencing Anthropocene chaos. This evaluation integrates cognitive sciences and literature findings to support the proposed cognitive framework. The hypothesis suggests that cognitive processes, as systems of communicating living cells, function as "Individual Cognitive Organisms" capable of learning, with the "Sentient Sole (Al-Fitrah)" acting as a super-intelligent cognitive entity.

5.1. Evaluation of Evidence Against the Hypothesis Model

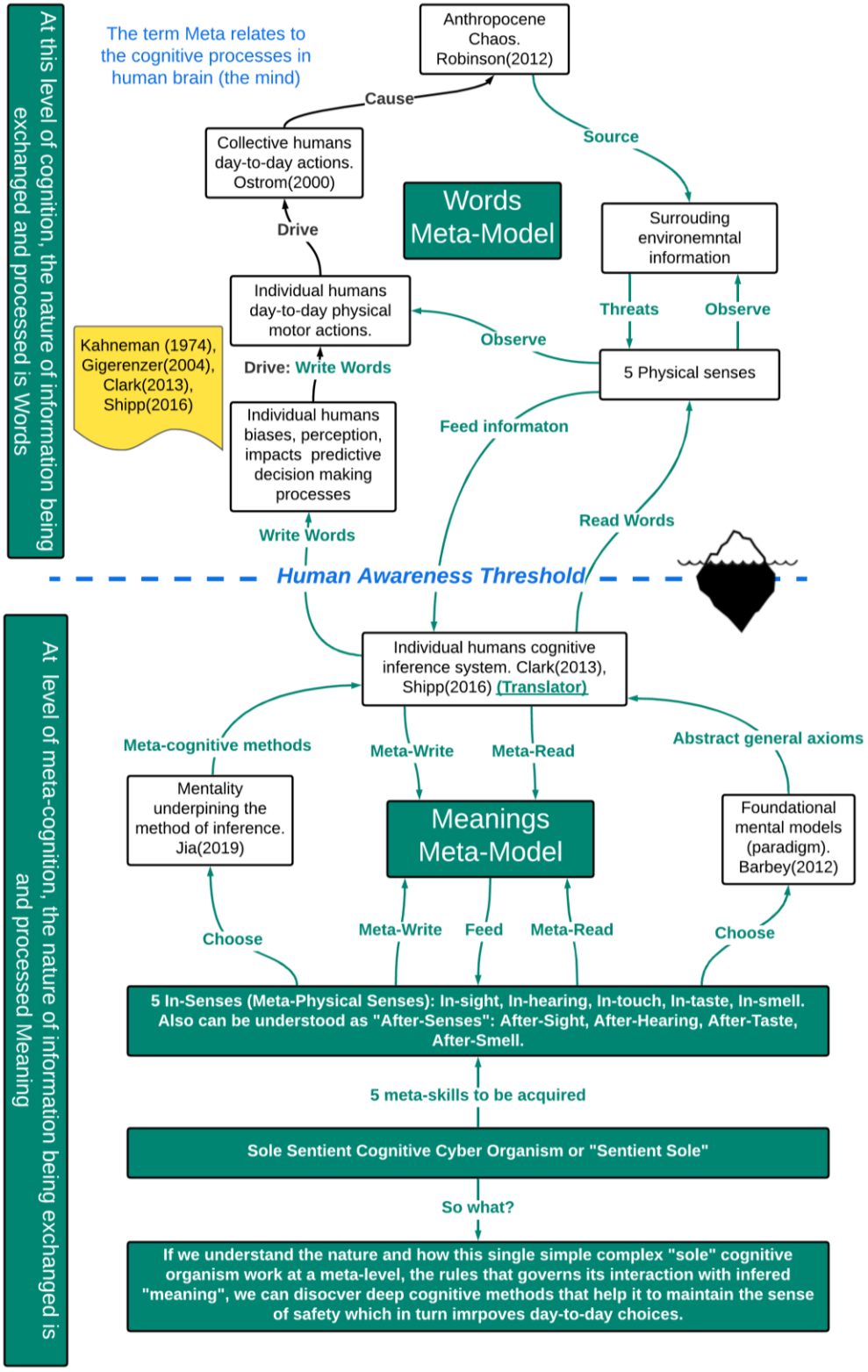
Integration of Cognitive Sciences with the Hypothesis

The evaluation involves mapping the collected research findings to the proposed hypothesis model, which elucidates how societal norms, individual cognitive processes, and mental paradigms collectively influence the Anthropocene. Each premise in the literature is analysed to establish its relevance and support to the hypothesis.

5.2. Mapping Literature to the Hypothesis Model

- **Anthropocene Chaos:** Ostrom's research on collective action and common-pool resources management highlights the significant influence of societal norms on environmental outcomes (Ostrom, 2000). This aligns with the concept of Anthropocene chaos driven by human-environment interactions.
- **Collective Human Actions:** Acemoglu and Robinson's work on institutions and economic outcomes demonstrates how collective human actions, shaped by political and economic policies, contribute to global challenges (Zamagni, 2012).
- **Individual Human Day-to-Day Actions:** Kahneman and Tversky's exploration of cognitive biases and heuristics in decision-making emphasises how individual perceptions and experiences shape daily actions, which cumulatively impact global phenomena (Tversky & Kahneman, 1974).
- **Individual Predictive Decision-Making Capability:** Gigerenzer's study on heuristics underscores the importance of mental models in predictive decision-making processes (Gigerenzer, 2004), supporting the hypothesis that cognitive processes drive individual actions.

Exhibit 1. Conceptual model of the causal link between the Anthropocene and deep cognitive processes for an individual human mind. Concepts in blue and green represent our hypothesis, and black or yellow represent ideas proposed in the literature.



- **Mental Models and Brain Regions:** Cognitive neuroscience research by Barbey et al. (2012) and Eichenbaum (2017) indicates the roles of the prefrontal cortex, hippocampus, and temporal lobes in forming and maintaining mental models. These regions are critical for integrating sensory data and updating mental paradigms, which is essential for predictive decision-making.
- **Predictive Coding and Inference Methods:** The work of Clark (2013), Seth (2013), and Shipp (2016) details the brain's function as a predictive machine. These studies highlight the prefrontal cortex, anterior cingulate cortex, and insular cortex's involvement in predictive coding, validating the model's emphasis on cognitive inference methods.
- **Metacognition and Mentality:** Jia, Li, and Cao's (2019) research on metacognition provides evidence for the meta-mental strategies that guide cognitive processes. This supports the model's assertion that cognitive inference methods are regulated by metacognitive methods.

5.3. Feedback Loop and Threshold of Awareness

Meta-Cognitive Feedback Loop:

- **Model Validation**: The cognitive inference system's role in translating sensory data into meaning-information aligns with the literature on mental models and predictive coding. The feedback loop, supported by metacognitive methods, ensures continuous updating and refinement of cognitive processes.

Threshold of Awareness

- **Model Validation**: The distinction between cognitive and meta-cognitive levels, where information is processed as words and meanings, respectively, aligns with the hierarchical structure of cognitive processing described in the literature.

Meta-Skills Acquisition

- **Hypothesis Validation**: The cognitive sciences' emphasis on learning and adaptation underscores the idea that the human mind may have a potential need to acquire some meta-cognitive skills where physical skills (hearing, seeing, tasting, touching, smelling) are means to develop the meta-version of those senses. We believe that if the Sentient Sole (Al-Fitrah) is proven to exist, then it is necessary for it to be able to sense its environment, which comprises “meaning information”.

5.4. Conceptual Model Validation

As depicted in Exhibit 1, the conceptual model attempts to integrate the key findings from the literature to form a cohesive understanding of cognitive processes and their impact on the Anthropocene. The model illustrates the causal link between individual cognitive processes, collective human actions, and environmental outcomes, validated by empirical evidence and cognitive theories. However, the concept of Sentient Sole (Al-Fitrah) requires further research and examination.

6. Future work

Future work for this research will focus on several critical areas to deepen our understanding of the identified concepts and further validate the model. While the "Sentient Sole (Al-Fitrah)" concept is central to the hypothesis, direct empirical backing is limited. Future research should focus on exploring the emergent properties of cognitive organisms and their potential for super-intelligence. The influence of individual mental paradigms on cognitive processes needs more rigorous exploration, particularly in the context of how paradigms are formed and adapted. Efforts will include:

1. **Integration of Neuroscientific Findings**: Collaborating with neuroscientists to map cognitive processes to brain activity, with the goal of identifying neurological correlates of the mental paradigms discussed.
2. **Advancement of Reading and Writing**: We will investigate a novel method for Reading and Writing.
3. **Exploration of Informational 'Spirituality'**: Investigating the intersection between information theory and perceptions of 'spirituality' to better understand how this influences human cognition and interpretation of natural phenomena.
4. **Cross-Disciplinary Theoretical Synthesis**: This involves bridging insights from cognitive science, neuroscience, psychology, and information theory to construct a unified theory that encapsulates the ideal mental paradigm.
5. **Iterative Model Refinement**: Using the results from the above studies to refine the proposed model, ensuring it accurately reflects the complex interplay between individual cognition and global phenomena.
6. **Initial hypothesis:** We will examine the following hypothesis, which will contribute towards a more holistic approach:

    a) If we ensure the trustworthiness of an intelligent agent's adopted mental paradigm, we can be assured that the agent's spontaneous actions are always the right ones for the betterment of self, others, and the whole.
    b) A systemic approach can be pursued by combining multiple scientific theories to define the ideal mental paradigm for every human brain, which would drive its cognitive processes and, thus, the quality of day-to-day decisions.
    c) An intelligent sentient system Reads and Writes. The method of Reading and Writing directly impacts the quality of the mental model adopted by the intelligence to experience a sense of living.
    d) Human cognition has one conceptual spot where whatever is fed into that spot is accepted as an infinitely unnegotiated ultimate truth.
    e) Human living is a complicated interactive experience between an abstract model of self (in conceptual dimension) manifested in physical actions (physical manifestation of abstract self, the body) to pursue a purpose by looking for the quickest means or method to achieve the purpose.
    f) A mental paradigm is a set of interrelated abstract rules and definitions deemed to be accepted as non-negotiable truths. It is used spontaneously to classify observed information (through five perceptive senses) that affirms or validates the certainty of its truthfulness regardless of the nature of the worldview being viewed by the mental paradigm bearer (an agent like a human or sentient robot).
    g) It guarantees an infinite harmonic state of the human mind that can never be challenged regardless of the situation faced by the human.
    h) Because it causes infinite harmonic cognitive experience, it has the potential to deserve to ascend to take that infinite truth definition of the human mind, which grants it the full spontaneous subconscious attention, self-identification of it (being a physical and mental manifestation of that mentality), and constant pursuit its validation and assuring that any physical relationship or connection in the natural world would in servitude of re-affirming its infinite truthfulness.
    i) When it takes that infinite conceptual placeholder definition, it becomes singular and only singular.
    j) The day-to-day decisions of humans who adopt this mental paradigm can be trusted (resulting in the betterment of themselves, others, and the whole human civilisation).
    k) There are many alternative mental paradigms (systems thinking, scientific thinking or religious thinking are paradigms). However, none guarantees the individual human brain's infinite harmony as much the only single true paradigm.
    l) We are proposing a new method for reading and writing, where we redefine both skills in terms of the cognitive experience in the human mind in general and then define a cognitive method for Reading and Writing things.

m) Reading is perceiving objects in some environment and then inferring a meaning with respect to the chosen meta-context.
n) Writing is the physical manifestation of a decision made after reading something in some observation in order to leave an impression on another perceived reader or an object.
o) When we adopt an ideal method for reading and writing, we alleviate our mental paradigm and expectations, thus alleviating the chaotic whole.
p) Concepts related to "spirituality" are directly related to natural phenomena related to the informational view of physical objects. The spirit of a physical object is the information stored in the physical object itself (some of which is directly related to itself, and other related potential views it will be viewed in various contexts) and imprinted on an observing evolving information complex in some context. For example, the spirit of the broken cup (which is a physical object) is the information stored in the broken glass itself and perceived and then processed into the progression of a sentient observer.

These efforts will not only contribute to the academic discourse but also have practical implications for designing interventions that could mitigate global challenges

References

Barbey, ,. A., & al., e. (2012). An integrative architecture for general intelligence and executive function revealed by lesion mapping. *Brain*, DOI:10.1093/brain/aws021.

Clark, A. (2013). Whatever next? Predictive brains, situated agents, and the future of cognitive science. *Behavioral and Brain Sciences*, 181-204.

Eichenbaum, H. (2017). Prefrontal-hippocampal interactions in episodic memory. *Nature Reviews Neuroscience*, 547-558.

Gigerenzer, G. (2004). Fast and Frugal Heuristics: The Tools of Bounded Rationality. In D. J. Koehler, & N. Harvey, *Blackwell Handbook of Judgment and Decision Making* (pp. 62-88). Blackwell Publishing.

Jia, X., Li, W., & Cao, L. (2019). The role of metacognitive components in creative thinking. *Frontiers in Psychology*. doi:https://doi.org/10.3389/fpsyg.2019.02404

Ostrom, E. (2000). Collective Action and the Evolution of Social Norms. *The Journal of Economic Perspectives*, 137-158.

Seth, A. (2013). Interoceptive inference, emotion, and the embodied self. *Trends in Cognitive Sciences*, 565-573.

Shipp, S. (2016). Neural elements for predictive coding. *Frontiers in Psychology*.

Squire, L., & al., e. (2004). The medial temporal lobe. *Annual Review of Neuroscience*, 279-306.

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *Science*, 1124-1131.

Zamagni, S. (2012). D. Acemoglu and J. A. Robinson: Why nations fail. The origins of power, prosperity and poverty. *International Review of Economics*, 409–413.