

The text "[*The Ontology of Knowledge, Logic, Arithmetic, Set Theory, and Geometry*](#)" by Jean-Louis Boucon explores a deeply philosophical interpretation of knowledge, its logical structure, and the foundational elements of mathematical and scientific reasoning.

Here's an overview condensed by an AI of the key themes and ideas, summarized into a quite general conceptual structure.

These two pages are instructive on their own, but their main purpose is to facilitate the reading of the entire article, allowing the reader to situate in the coherence of the whole both the meaning and the usefulness of each proposed idea.

1 Ontology of Knowledge (OK) Framework

- Boucon's OK framework presents reality as fundamentally interdependent, timeless, formless, and where probabilistic interdependence is the « meta-substance ». It emphasizes that our perception of reality is not a reflection of an objective, independent world but is shaped by the "Logos" : the necessity-driven, self-referential ordering principle that there must be singular modes of order (Individuations) within reality.

- The subject is such an Individuation. Designated as « singularity-subject » by OK it is traveled through by the « knowing-subject » as a wave of meaning.

- The OK argues that knowledge transcends material and temporal dimensions. It consists of logical relationships tied to the "knowing-subject," an individual whose existence and individuation shape the perception and understanding of reality.

2. Existence and Individuation

- Boucon argues that "I am, I exist" forms a foundational axiom of knowledge, mirroring Descartes' cogito but extending it into an ontological requirement. Individuation—the process by which each subject consistently becomes himself—is essential to the structure of knowledge and is a precondition for meaning.

- Existence, for the OK, is not merely a material state but a logical ordering that imposes coherence and continuity on the knowing subject's perspective. This principle contrasts sharply with classical views where objects and facts exist independently of a perceiving subject.

3. Modes of Existence: In-Act, Actual, and Existing

- Boucon delineates three distinct modes of order:

- In-Act: The unformed, underlying reality that underpins all possible experiences.

- Actual: Potential states that could manifest based on the present experience but do not yet exist for the subject.

- Existing: States or facts that are realized and meaningfully structured in the subject's present experience.

- This trichotomy underscores that existence has no present states but is dynamically interwoven with the continuous emergence of subject's knowledge.

4. Necessity vs. Contingency

- According to Boucon deterministic causation (events unfolding predictably from prior states) shall be replaced by probabilistic necessity, which he links to the subject's individuation. He proposes that while the future appears contingent and free to the knowing subject, each individual's development is fundamentally constrained by an overarching necessity to "become oneself."

- This view challenges the traditional causal models by introducing the concept of probabilistic paths, where the possible ways an individual can evolve are governed by probabilities subsumed by the necessity of the subject's being.

5. Logical and Mathematical Structures in the OK

- Boucon posits that mathematics and logic are not detached, ideal constructs but intimately tied to the singularity-subject. These fields "idealize the laws of meaning," suggesting that they reflect not universal truths but persistent idoneities (fitness for purpose) in relation to the subject's individuation.

- Arithmetic, for instance, emerges from the built-in intuition of "the One," and mathematical constructs align with the subject's necessary unity. Consequently, mathematical facts and logical relations are seen as «judgments» of necessity, conditioned by the subject's existence.

6. Geometrical and Logical Infinity

- Boucon critiques the notion of an actual, infinite set or geometrical infinity as an illusion stemming from formal logic. He argues that concepts of infinity or continuity are constrained by the representational limits imposed by the subject's knowledge structure.

- This argument reflects Boucon's view that all of reality's structures—mathematics, geometry, logic—are bound to the subject's perspective. Therefore, infinity, as traditionally conceived, may not truly "exist" within the logical constraints of the OK framework.

7. Autonomy and Idoneity of Representations

- The OK framework stresses that representations in the subject's mind—whether in mathematics, language, or physical perception—are "idoneous," meaning they are necessarily fit or appropriate. This idoneity is not guaranteed by external validation but by internal coherence within the subject's logical framework.

- Boucon examines how mathematician Ferdinand Gonseth viewed mathematical abstraction as a tool that creates new knowledge horizons, thus allowing us to "construct" rather than "reflect" reality. The OK, however, suggests that all representations emerge by separation of the subject's Unity core : « I become myself » rather than by synthesis.

8. Implications for Science and Philosophy

- Boucon's OK theory proposes that scientific theories, while seemingly objective, are subjective mappings reflecting the knowing subject's individuation process. Science's mathematical models and representations, therefore, should be seen as fit or "idoneous" to the subject's perspective rather than objective truths.

- In this light, the OK argues that the classic epistemological goal of understanding the objective world is flawed. Instead, knowledge should be understood as the advent of necessary probabilistic inferences within the subject's perspective.

9. The Axiom of Existence and Non-Contradiction

- The OK's first axiom of existence questions the principle of non-contradiction in classical logic. In this model, the truth of a fact that "exists for the subject" is necessary to his existence, hence the non-existence of the same fact is nonsensical beyond the horizon of meaning.

- Boucon posits that individuation imposes necessity and continuity, meaning the knowledge held by a subject cannot contain inherent contradictions since it is part of the subject's coherent logical structure.

Conclusion

- Jean-Louis Boucon's Ontology of Knowledge challenges traditional views on reality, logic, and mathematics by placing the knowing subject at the core of existence. Knowledge is not a collection of facts about an external world but a necessary structure tied to the subject's individuation.