

Character List for IFC

Who are these people and what about them is relevant to the narrative?

Socrates | 470-399 BCE | Ancient Greece

- Rational inquiry/Dialectic/Socratic Method
- Wisdom is associated with acknowledging ignorance

Plato | 428/427 or 424/423 - 348/347 BCE | Ancient Greece

- Universals and Particulars (Forms)
- Deductive reasoning (universal -> particular, analysis)
- Problem of Universals (what is the nature of properties?)
- The Form of The Good (ethics)

Aristotle | 384-322 BCE | Ancient Greece

- Taxonomy (genus and species)
- Inductive reasoning (particular -> universal, synthesis)
- Being/Substance (*ousia*) is Matter + Form (Hylomorphism)
- Potentiality and Actuality
- Four causes (i.e. essences, kinds of answers to “why” questions)
 1. Material
 2. Formal
 3. Efficient
 4. Final
- Natural kinds
- Formal deductive logic (*Prior Analytics*, syllogisms)

Euclid | fl. 300 BCE | Ancient Greece

- First serious mathematical textbook (*Elements*)
- Axiomatic method + deduction

Rene Descartes | 1596-1650 | France, Dutch Republic

- Hyperbolic doubt (methodological skepticism)
- Mechanism
- Mind-body dualism
- Cartesian coordinate system

John Locke | 1632-1704 | England

- Tabula rasa

Issac Newton | 1642-1726/27 | England

- Newtonian mechanics
- Absolute space and time

Gottfried Wilhelm Leibniz | 1646-1716 | Germany

- Rationalism
- Calculus ratiocinator (symbolic logic)
- Characteristica universalis
- Alphabet of human thought
- Thought space and time were relational.

David Hume | 1711-1776 | Scotland

- Empiricism
- Two categories of perceptions: impressions (feeling) and ideas (thinking)
- Ideas are faint copies of impressions
- Simple (atomic) and complex (having parts) perceptions
- Three principles of association:
 1. Resemblance - ideas are associated if the objects they represent appear similar to each other
 2. Contiguity - ideas are associated if the objects they represent appear near each other in space or time
 3. Cause and effect - ideas are associated if the objects they represent appear causally related
- On causality:
 1. Humans are conditioned via experience to accept causality.
 2. Causality is only safely applicable in thought via deductive logic.
 3. If we do not naively accept causality, induction cannot produce certain truths.
 4. All science is probability; there are no real laws of science.
 5. Belief drives the human mind to expect that the future will resemble the past.
- Problem of induction:
 1. Demonstrative reasoning: observing some instances does not guarantee anything about all instances.
 2. Probable reasoning: there is no guarantee that things will stay the same in the future.
- Hume's fork (ontology, epistemology, logic):
 1. Relations of Ideas (necessary, a priori, analytic)
 2. Matters of Fact (contingent, a posteriori, synthetic)
- Entropy: thoughts of the past are limited, compared to the possibilities of the future.
- Bundle theory of personal identity: the mind is just a bundle of perceptions.
- Is-ought problem: what "ought to be" cannot be validly derived from what "is." There is no true moral knowledge.

Immanuel Kant | 1724-1804 | Prussia, Germany

- Transcendental idealism
- Analysis/synthesis (specification/generalization)
 1. Analytic statement: the truth value is within the statement, and it

does not provide new, contingent knowledge, only necessary knowledge.

2. Synthetic statement - the truth value depends on something outside of the linguistic content, and it provides new, contingent knowledge.
- Synthetic *a priori* statements provide new knowledge without experience.
 - “ $5 + 7 = 12$ ” is *a priori* because it does not have to be experienced to be known. But it is also synthetic because a calculation must be done.
 - Our objective knowledge of physics relies on synthetic *a priori* laws: subsistence (substance), space, time, and causality.
 - A subject (a conscious being) is compelled to supply synthetic *a priori* laws as preconditions for experience.
 - Thing-in-itself. The empirical world is a complex of appearances. The objective world is inaccessible to us. This idea spawned German Idealism and Phenomenology.
 - Understanding of the external world requires both experience and *a priori* concepts. “Thoughts without content are empty, intuitions (perceptions) without concepts are blind.”
 - Conceptual unification and integration is done through concepts (categories of understanding) operating on the perceptual manifold within space and time.
 - The *sensibility* supplies the mind with data, and the *understanding* gives the data order by producing *judgements* that are subsumed under *categories of understanding*. Before knowledge can be objective, it must be incorporated under an *a priori* category of understanding (a causal statement is made only after synthesizing percepts (intuitions) into a concept (that is filed under the category of causality). The categories are innate.
 - The *transcendental schema* associates percepts with concepts by means of *a priori* principles:
 1. substance is that which endures through time;
 2. the cause must always be prior to the effect.
 - Intuition is independent from objective reality.

Georg Wilhelm Friedrich Hegel | 1770-1831 | Germany

- Idealist
- Fond of Heraclitus: nature is a process, being and non-being are abstractions.
- Thesis, antithesis, synthesis triad (Fichte)

George Boole | 1815-1864 | England

Charles Sanders Peirce | 1839-1914 | United States

Ludwig Boltzmann | 1844-1906 | Austria

Georg Cantor | 1845-1918 | Germany

Gottlob Frege | 1848-1925 | Germany

David Hilbert | 1862-1943 | Germany
Bertrand Russell | 1872-1970 | England
Ludwig Wittgenstein | 1889-1951 | Austria, England
Norbert Wiener | 1894-1964 | United States
Alan Turing | 1912-1954 | England
Alfred Tarski | 1901-1983 | Poland, United States
Alonzo Church | 1903-1995 | United States
Kurt Godel | 1906-1978 | Austria, United States
Claude Shannon | 1916-2001 | United States
Noam Chomsky | 1928- | United States