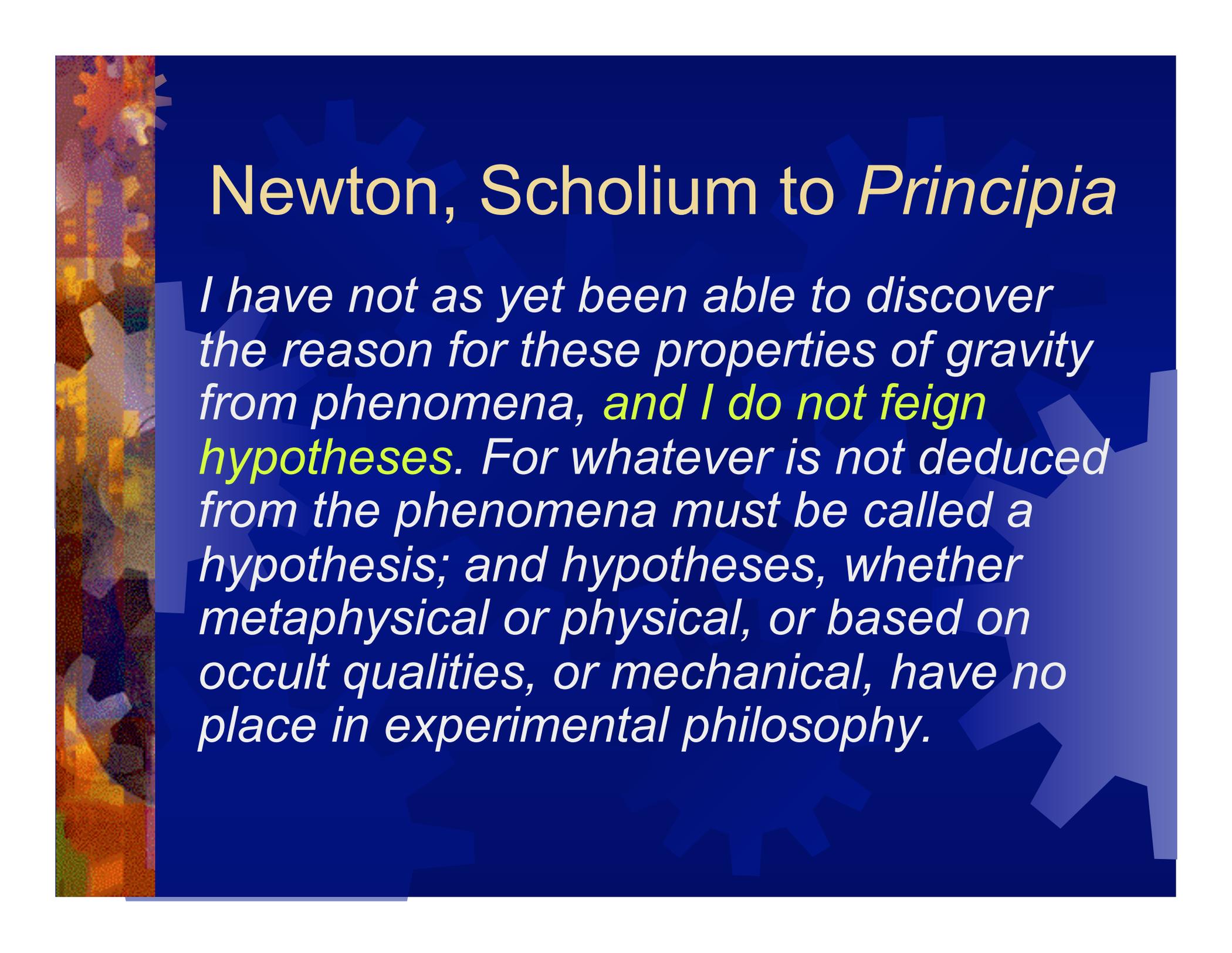


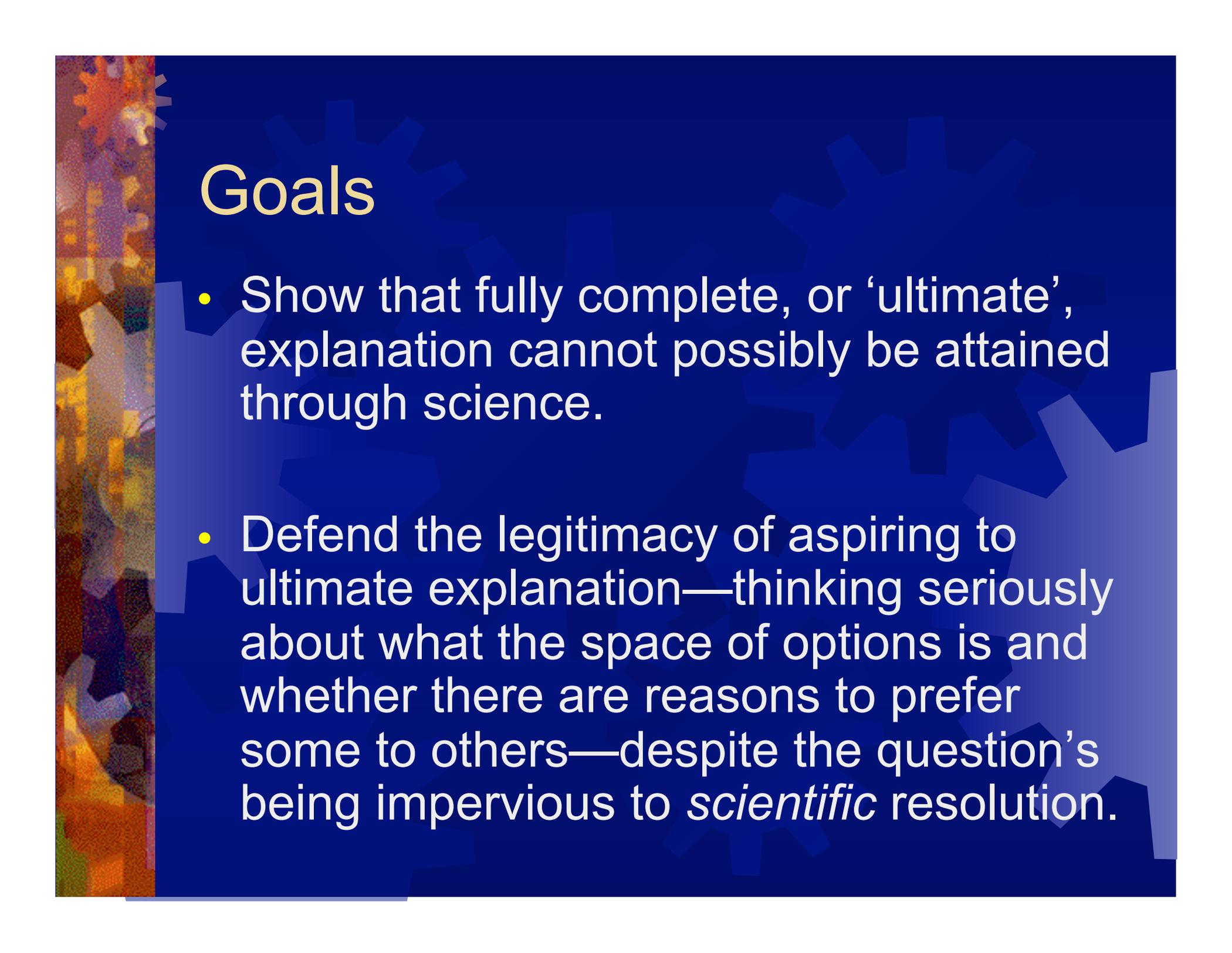
ULTIMATE EXPLANATION
REFORGING
'NATURAL PHILOSOPHY'

Tim O'Connor



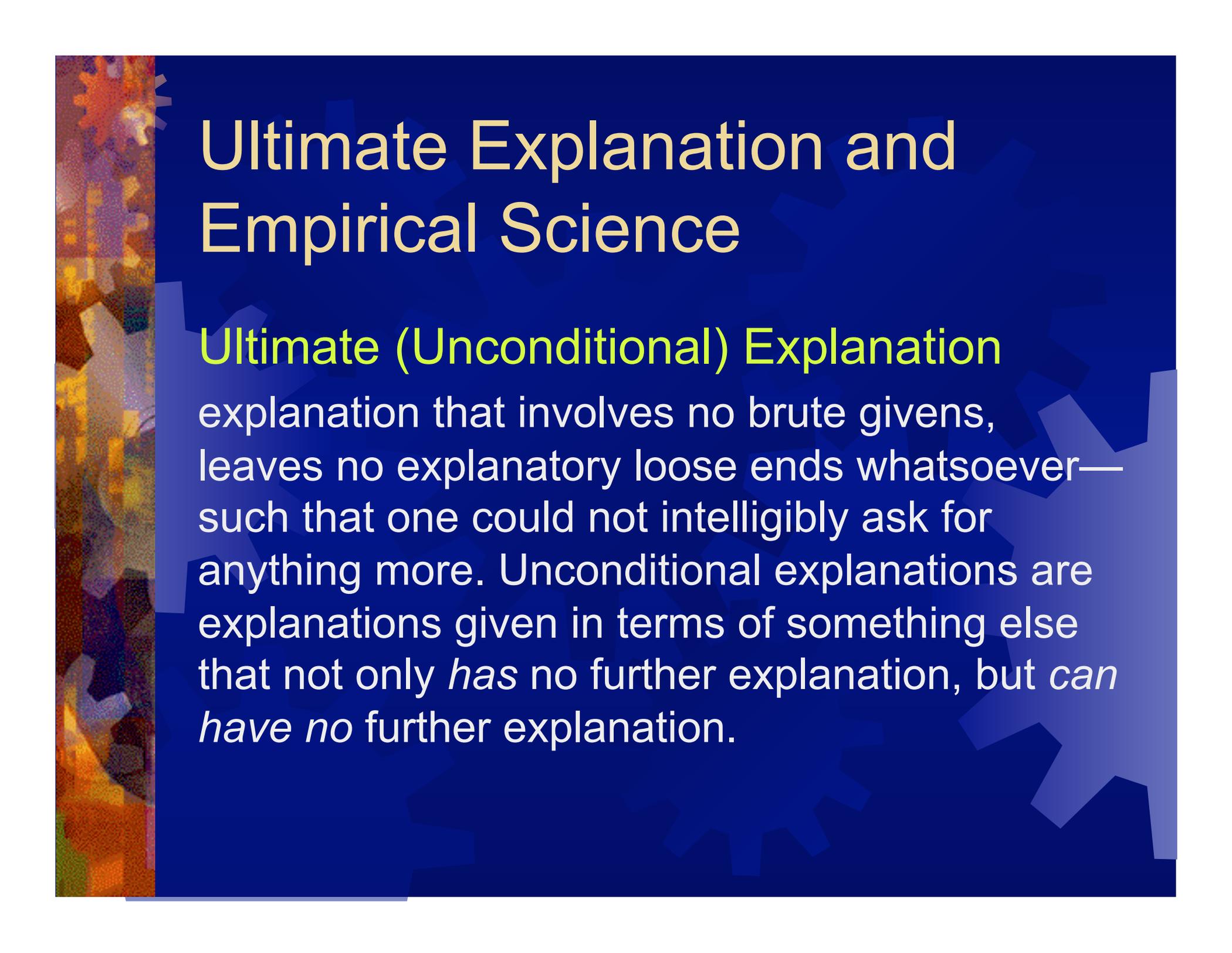
Newton, Scholium to *Principia*

I have not as yet been able to discover the reason for these properties of gravity from phenomena, and I do not feign hypotheses. For whatever is not deduced from the phenomena must be called a hypothesis; and hypotheses, whether metaphysical or physical, or based on occult qualities, or mechanical, have no place in experimental philosophy.



Goals

- Show that fully complete, or ‘ultimate’, explanation cannot possibly be attained through science.
- Defend the legitimacy of aspiring to ultimate explanation—thinking seriously about what the space of options is and whether there are reasons to prefer some to others—despite the question’s being impervious to *scientific* resolution.



Ultimate Explanation and Empirical Science

Ultimate (Unconditional) Explanation

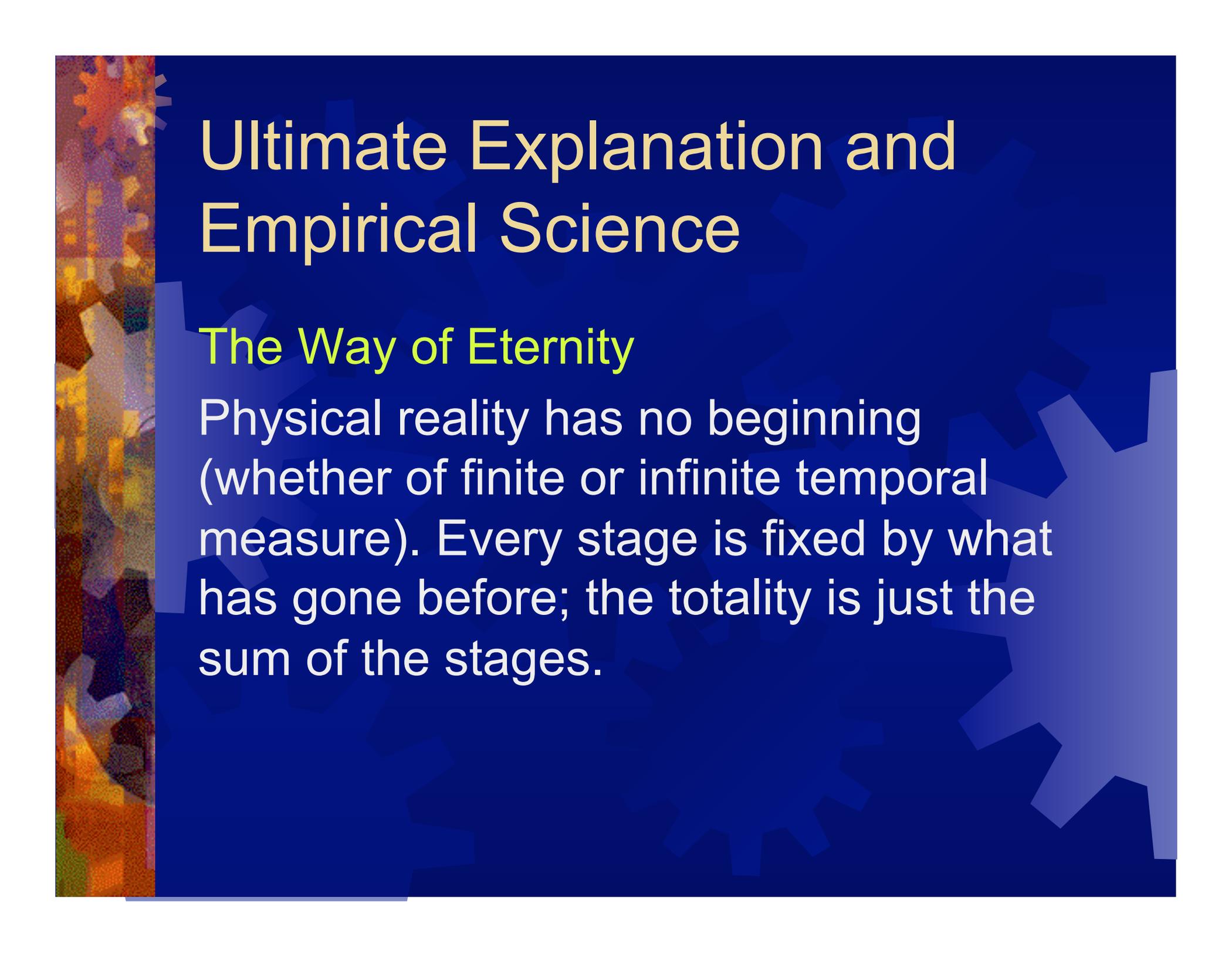
explanation that involves no brute givens, leaves no explanatory loose ends whatsoever—such that one could not intelligibly ask for anything more. Unconditional explanations are explanations given in terms of something else that not only *has* no further explanation, but *can have no* further explanation.



Ultimate Explanation and Empirical Science

The Way of Unification

Successively reducing physical theory's number of fundamental properties and property-bearers, and the laws governing their co-evolution through spacetime.



Ultimate Explanation and Empirical Science

The Way of Eternity

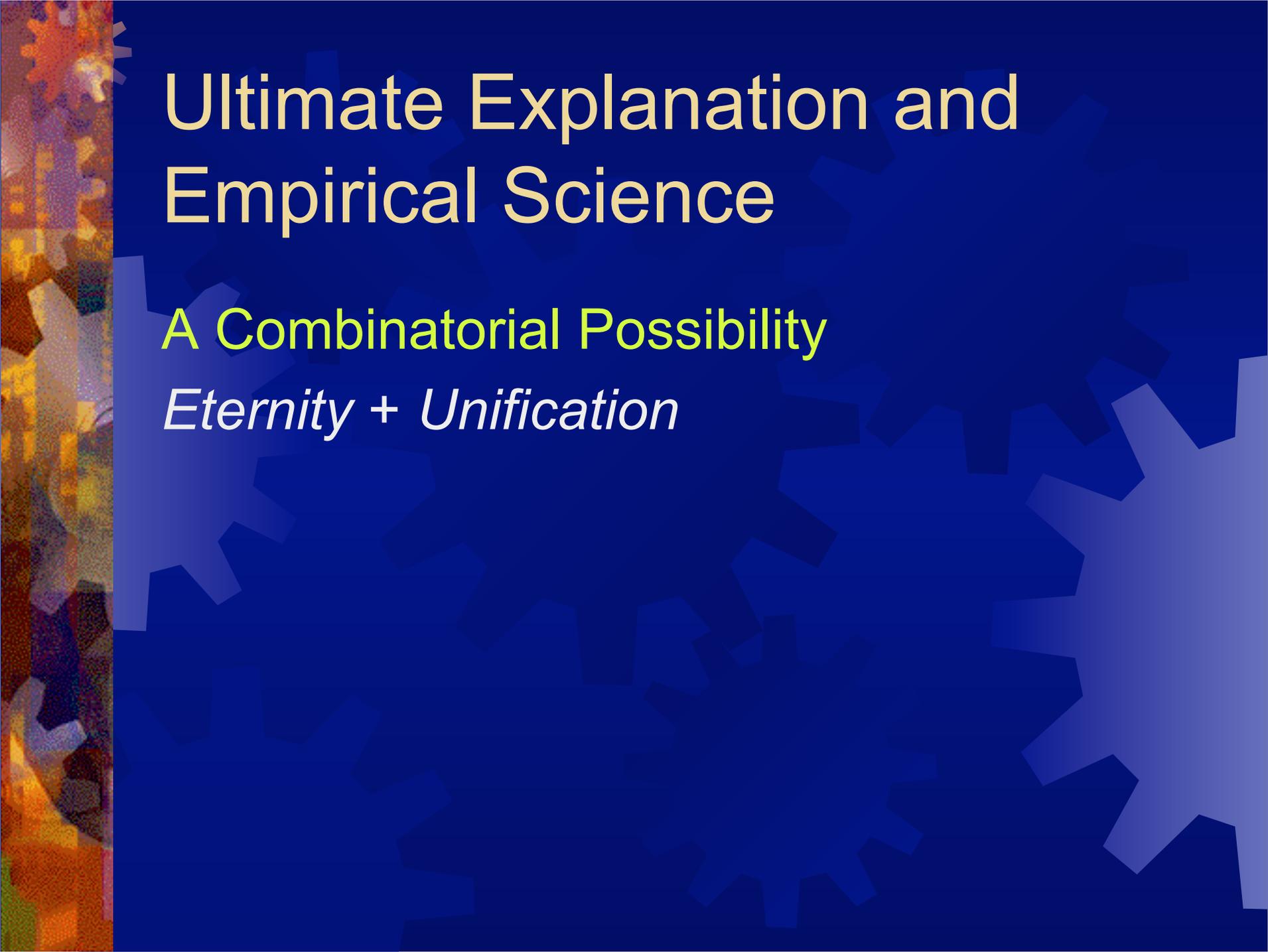
Physical reality has no beginning (whether of finite or infinite temporal measure). Every stage is fixed by what has gone before; the totality is just the sum of the stages.



Ultimate Explanation and Empirical Science

The Way of Plenitude

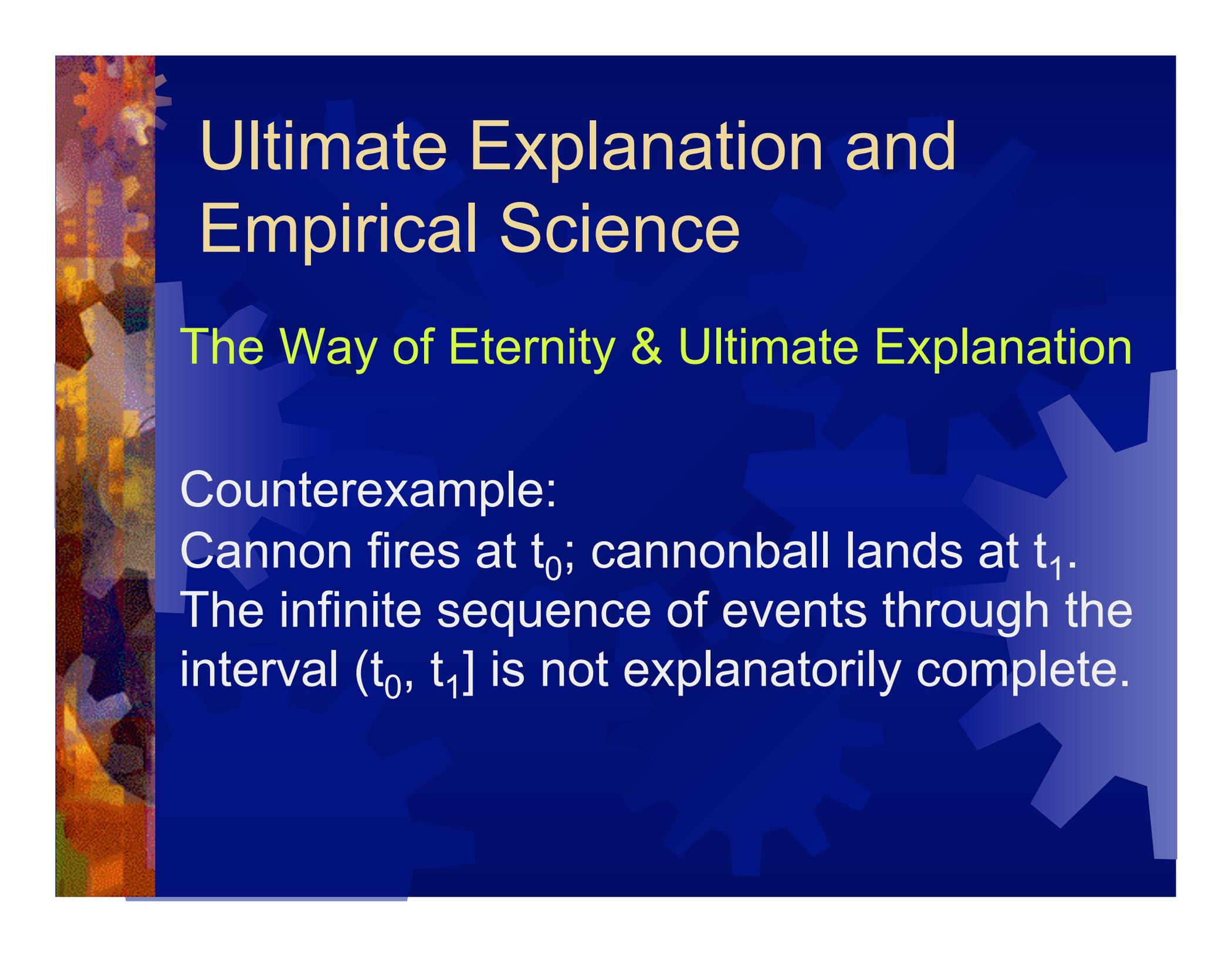
Providing ultimate explanation through the devising of an elegant and empirically adequate theory that locates our universe within a vast structure of totalities that exhibits completely non-arbitrary properties.



Ultimate Explanation and Empirical Science

A Combinatorial Possibility

Eternity + Unification



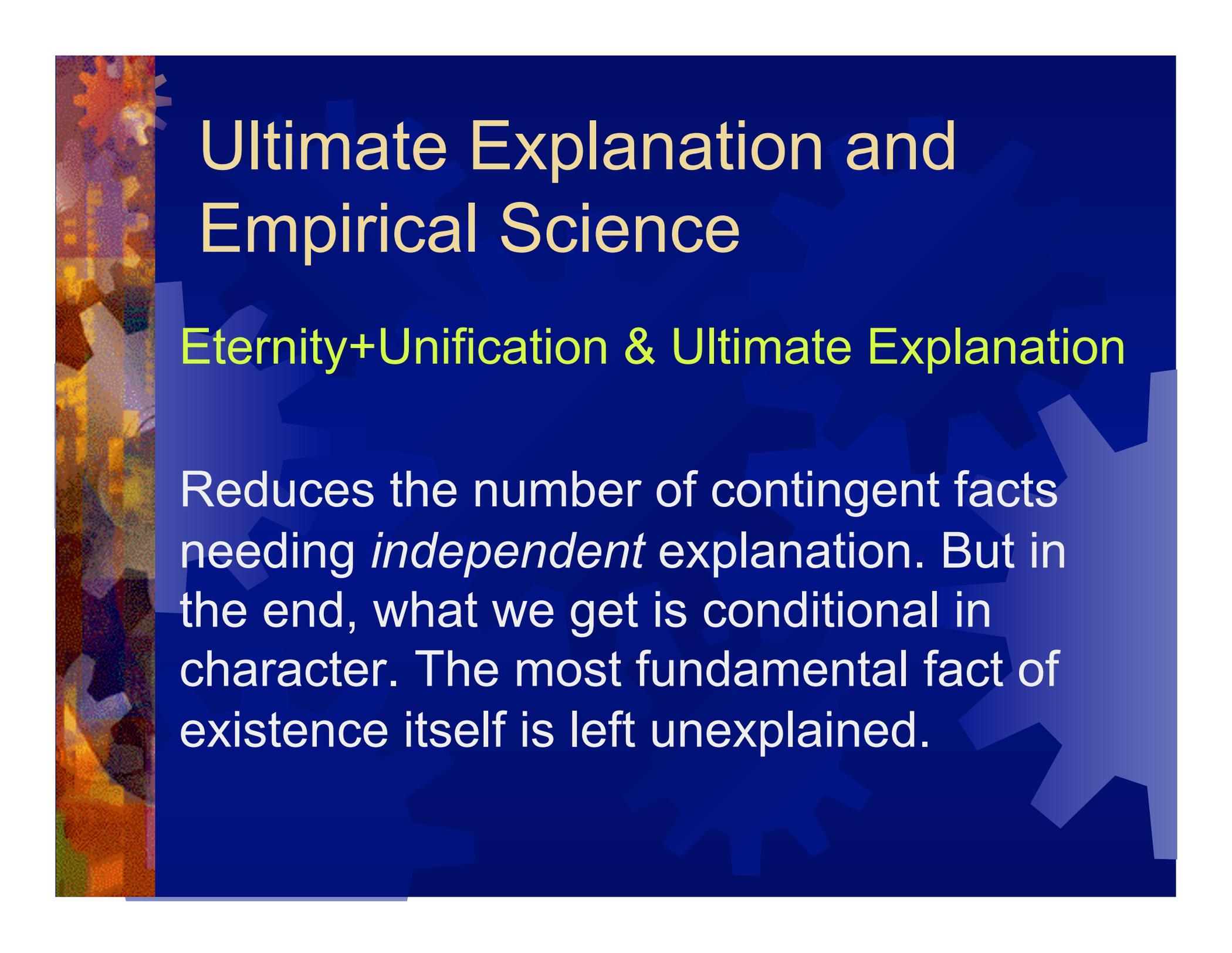
Ultimate Explanation and Empirical Science

The Way of Eternity & Ultimate Explanation

Counterexample:

Cannon fires at t_0 ; cannonball lands at t_1 .

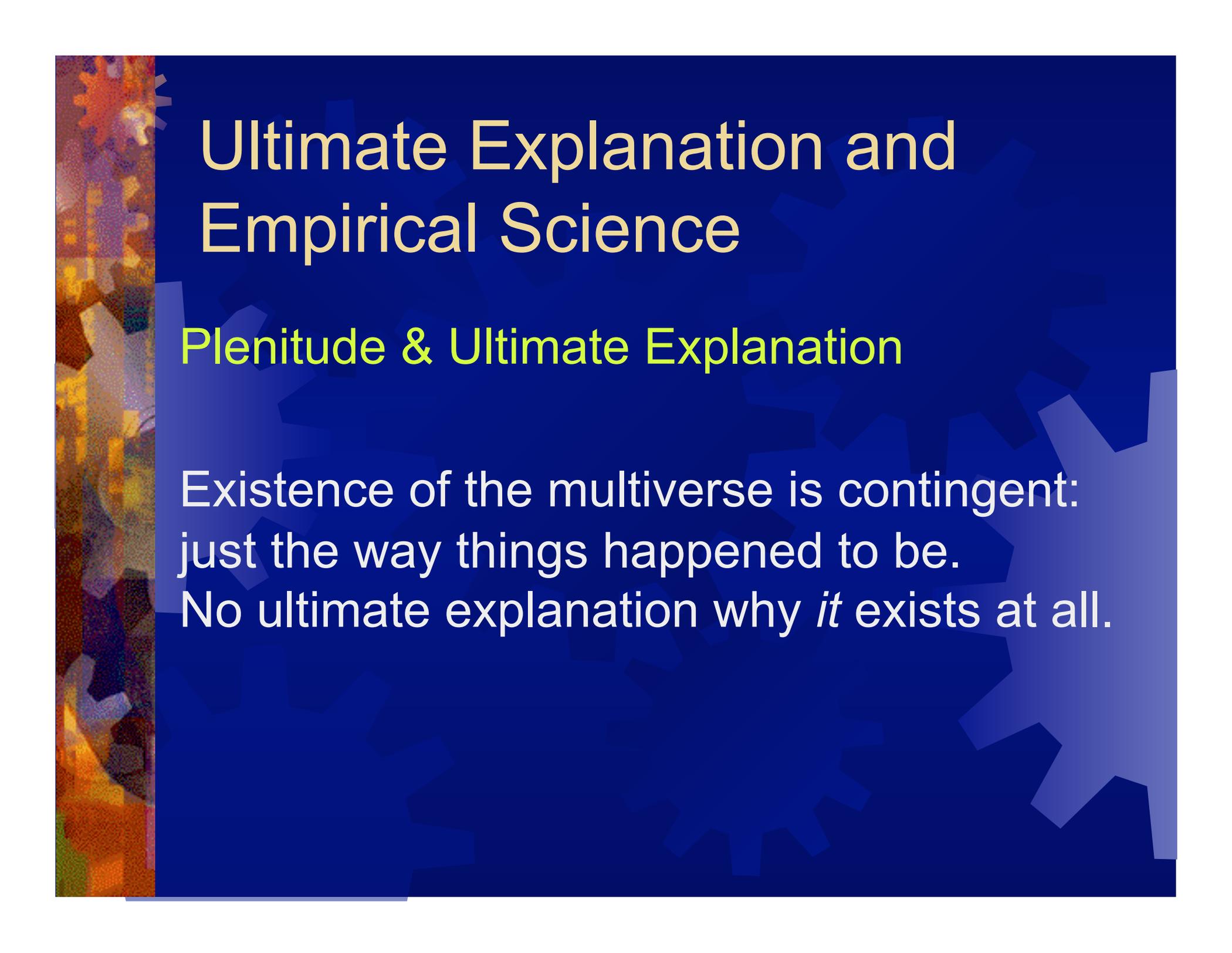
The infinite sequence of events through the interval $(t_0, t_1]$ is not explanatorily complete.



Ultimate Explanation and Empirical Science

Eternity+Unification & Ultimate Explanation

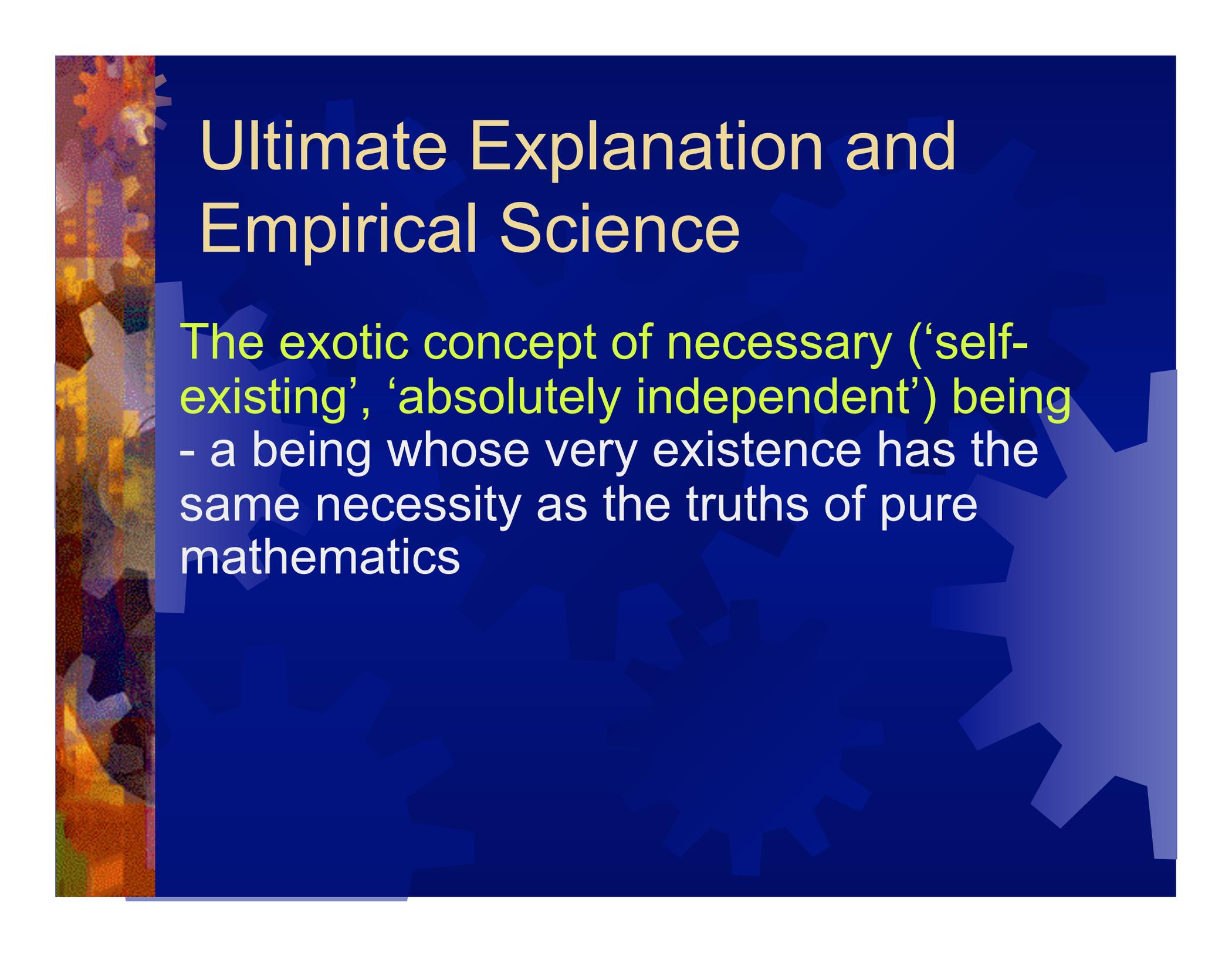
Reduces the number of contingent facts needing *independent* explanation. But in the end, what we get is conditional in character. The most fundamental fact of existence itself is left unexplained.



Ultimate Explanation and Empirical Science

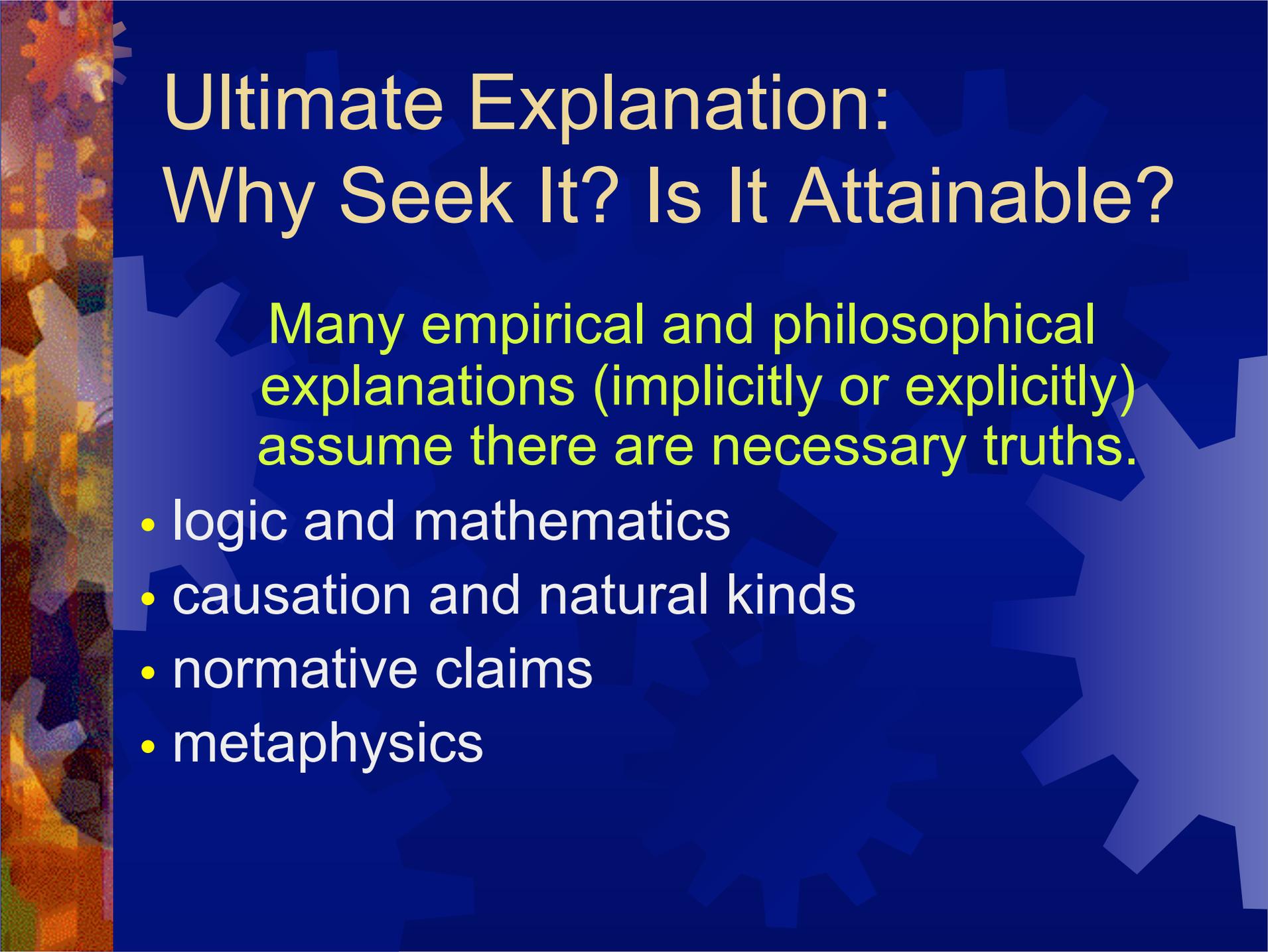
Plenitude & Ultimate Explanation

Existence of the multiverse is contingent:
just the way things happened to be.
No ultimate explanation why *it* exists at all.



Ultimate Explanation and Empirical Science

The exotic concept of necessary ('self-existing', 'absolutely independent') being - a being whose very existence has the same necessity as the truths of pure mathematics



Ultimate Explanation: Why Seek It? Is It Attainable?

Many empirical and philosophical explanations (implicitly or explicitly) assume there are necessary truths.

- logic and mathematics
- causation and natural kinds
- normative claims
- metaphysics

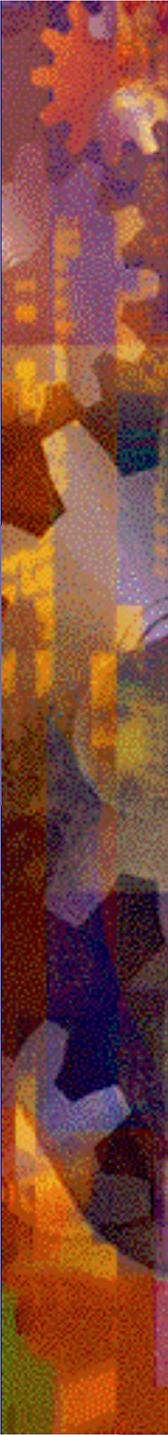


Ultimate Explanation: Why Seek It? Is It Attainable?

Explanations and Explanation Schemas

We could have reason to endorse an explanation schema in the absence of an explanation if

- it seems on reflection to 'work' and to not generate insoluble puzzles of its own;
- alternatives we can envision either implode on examination or face grave problems for which there are no clear remedies; and
- there is reason to think that the range of alternatives we are considering are exhaustive.



Ultimate Explanation: Why Seek It? Is It Attainable?

Ultimate Explanation and Chance/ Indeterminism

Some ways of formulating the question make unwarranted assumptions about the form an adequate explanation must take.

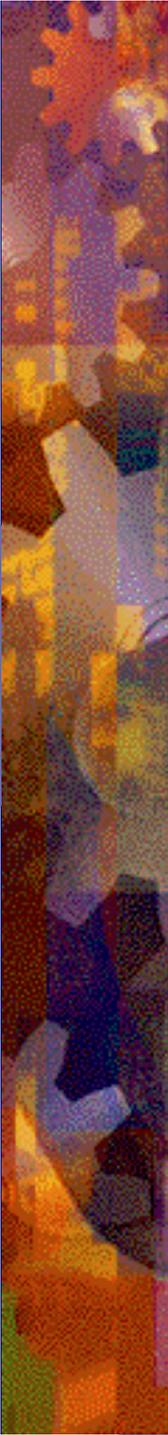


Ultimate Explanation: Why Seek It? Is It Attainable?

Ultimate Explanation and Chance/Indeterminism

Vague form: *Why is there anything at all?*

- What explains the fact that there are contingent things (things that might not have been)?
- What explains the fact that *these* contingent things exist?
- What explains the fact that *these* contingent things exist rather than *those* apparently possible others?
- Why are there any contingent things rather than there being nothing contingent at all?



Ultimate Explanation: Why Seek It? Is It Attainable?

Ultimate Explanation and Chance/Indeterminism

Best Formulation of Existence Question:

Are there contingently existing objects, and if there are, why do those particular contingent objects there are exist and undergo the events they do?



Ultimate Explanation: Why Seek It? Is It Attainable?

Ultimate Explanation and Chance/Indeterminism

Contrastive Explanation: Why did X occur rather than Y? (For any alternative, Y, either within a particular range or unrestrictedly.)

Noncontrastive Explanation: Why did X occur? What was the mechanism or causal source that actually produced X, whether it was deterministic or not?

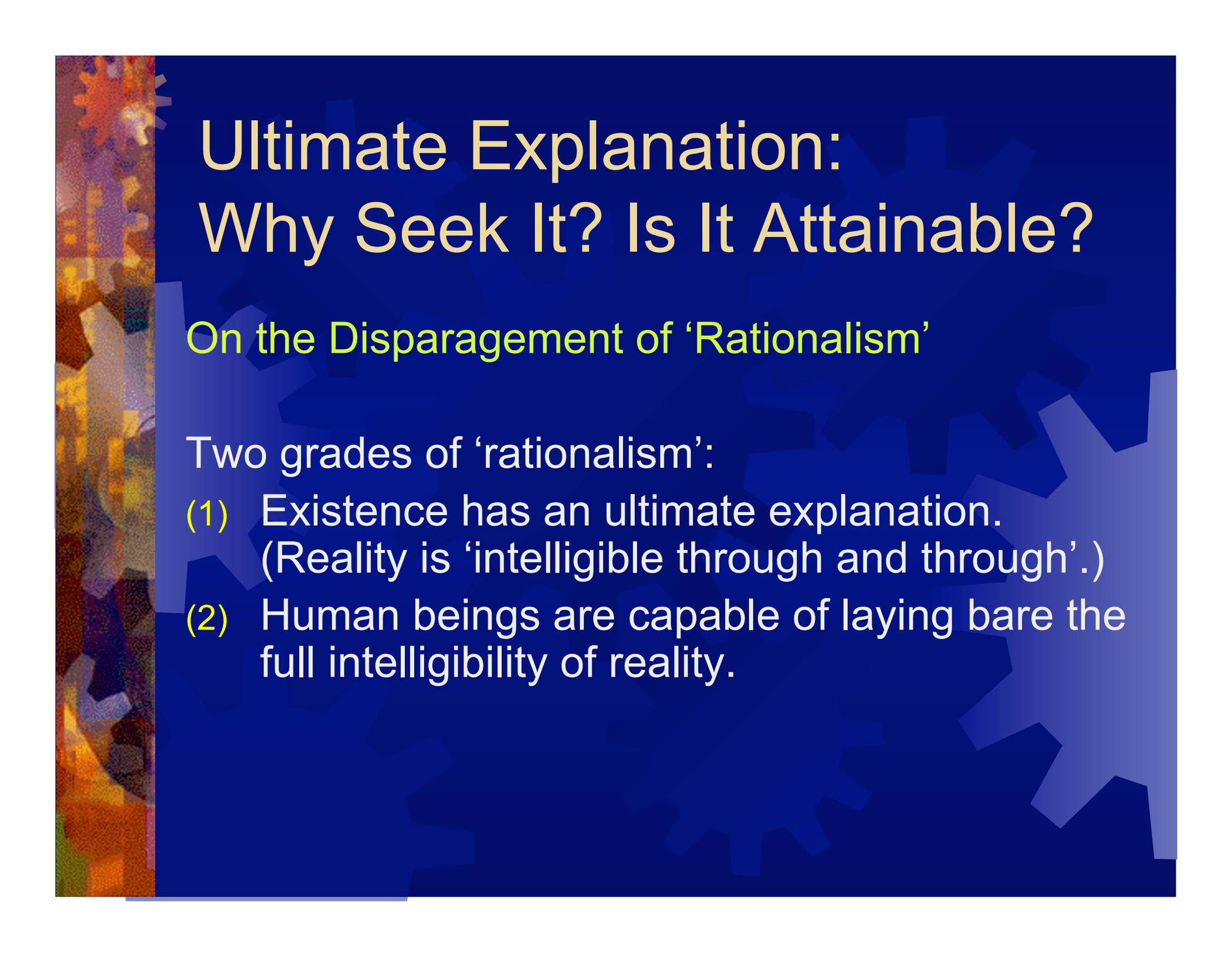


Ultimate Explanation: Why Seek It? Is It Attainable?

On the Disparagement of 'Rationalism'

It cannot just happen to be the case that no ultimate explanation is available. If there is no ultimate explanation, then it is necessarily the case that there is no ultimate explanation.

Thus, its rejection is no less strong a claim as its acceptance.

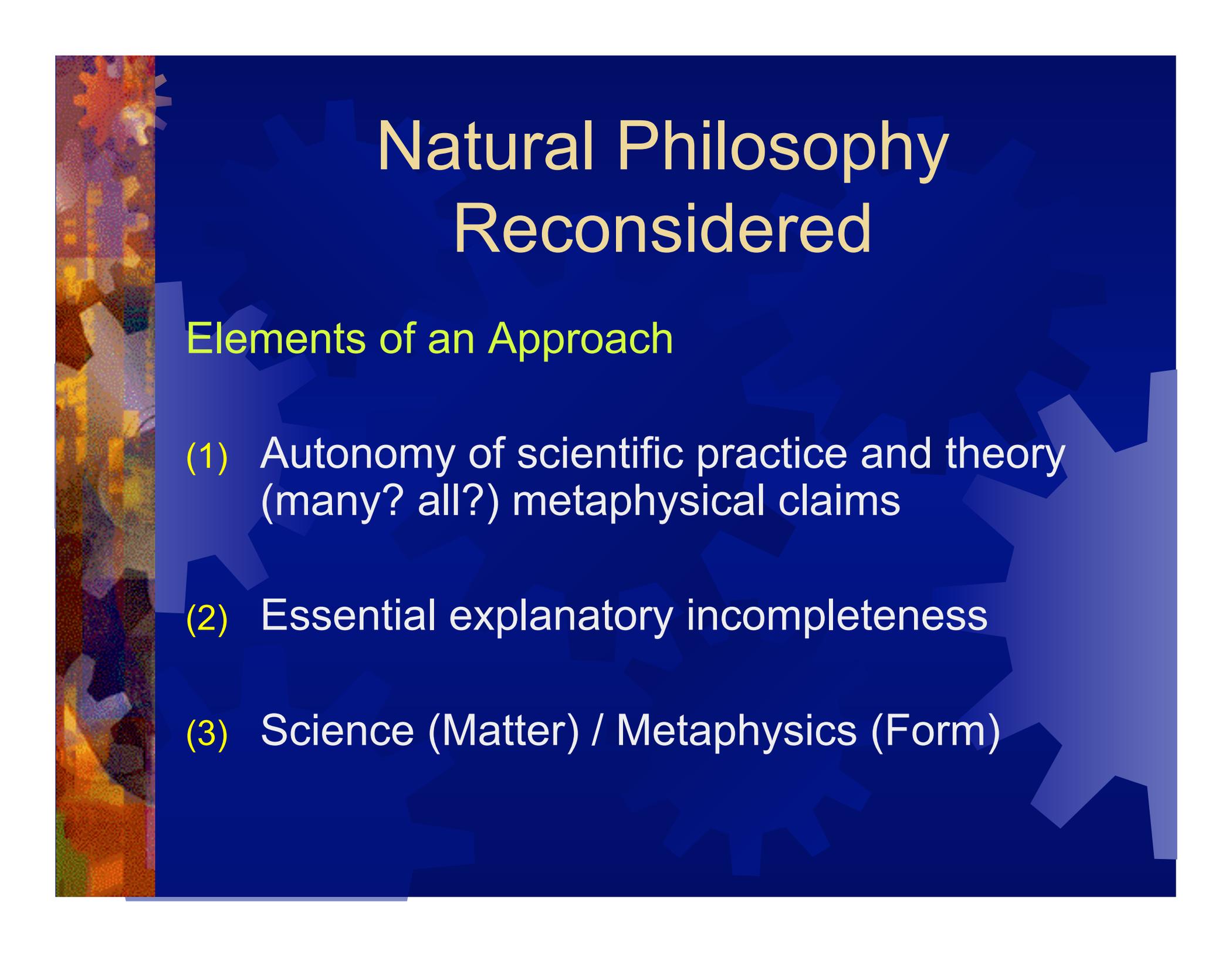


Ultimate Explanation: Why Seek It? Is It Attainable?

On the Disparagement of 'Rationalism'

Two grades of 'rationalism':

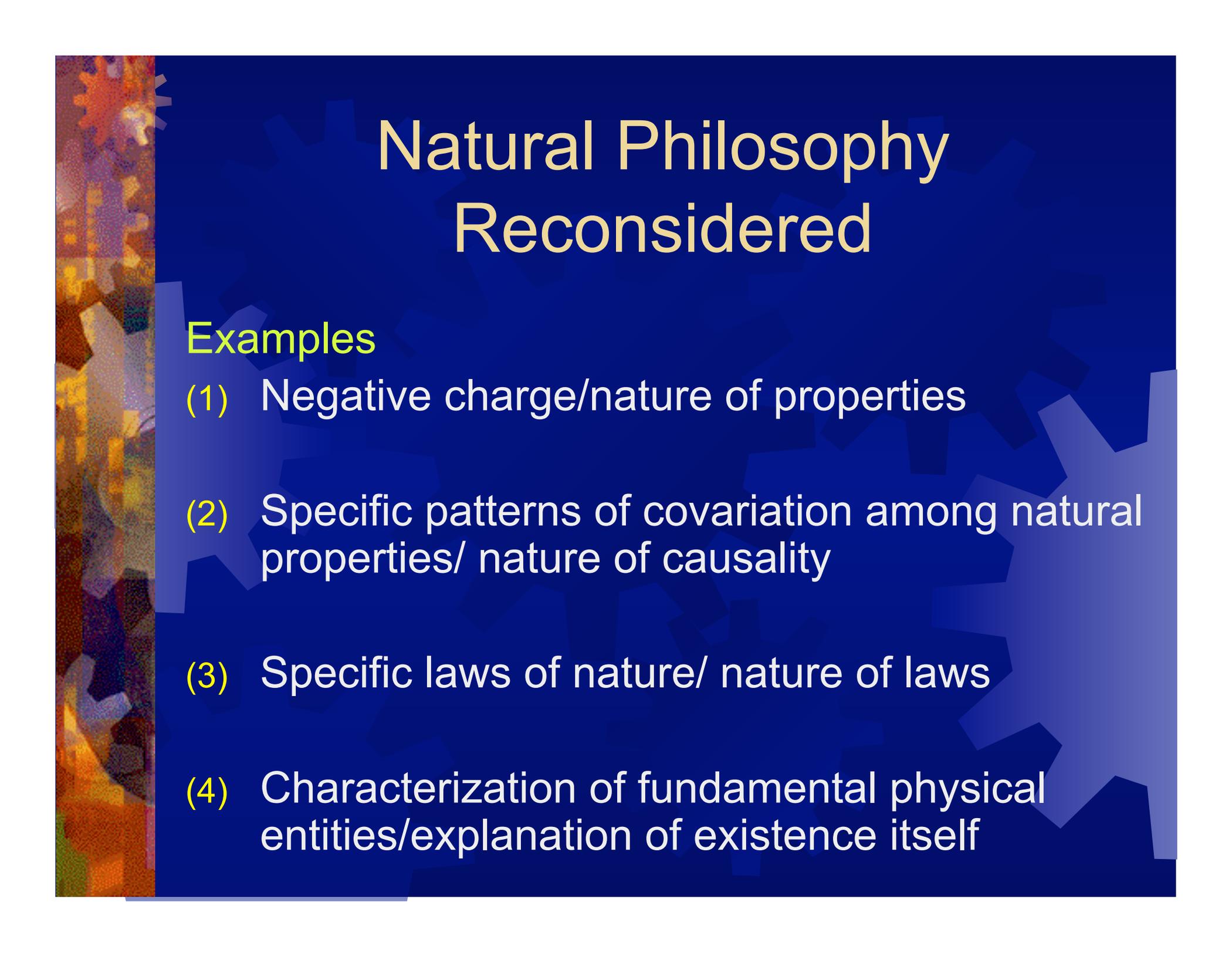
- (1) Existence has an ultimate explanation.
(Reality is 'intelligible through and through'.)
- (2) Human beings are capable of laying bare the full intelligibility of reality.



Natural Philosophy Reconsidered

Elements of an Approach

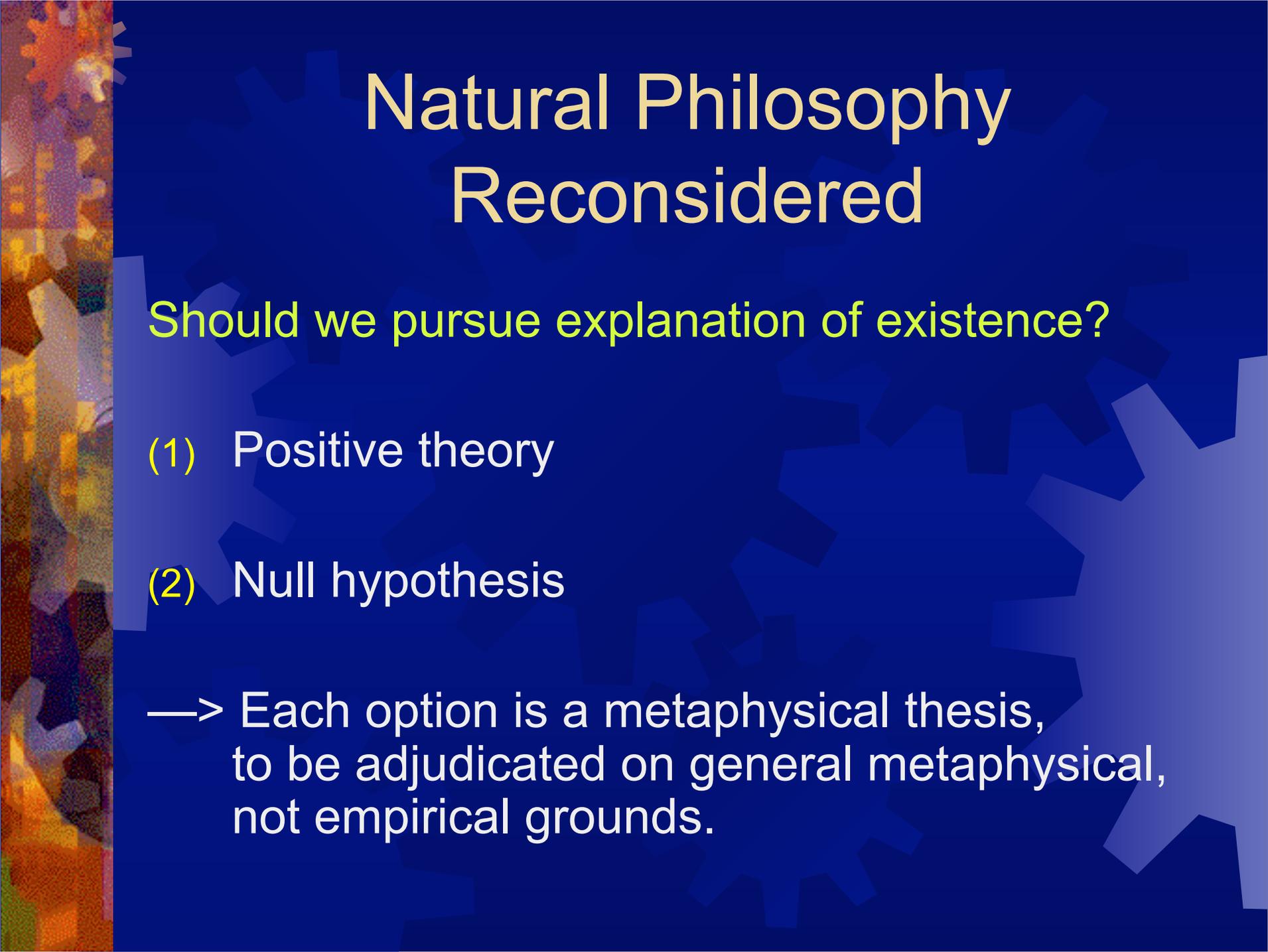
- (1) Autonomy of scientific practice and theory
(many? all?) metaphysical claims
- (2) Essential explanatory incompleteness
- (3) Science (Matter) / Metaphysics (Form)



Natural Philosophy Reconsidered

Examples

- (1) Negative charge/nature of properties
- (2) Specific patterns of covariation among natural properties/ nature of causality
- (3) Specific laws of nature/ nature of laws
- (4) Characterization of fundamental physical entities/explanation of existence itself



Natural Philosophy Reconsidered

Should we pursue explanation of existence?

(1) Positive theory

(2) Null hypothesis

—> Each option is a metaphysical thesis,
to be adjudicated on general metaphysical,
not empirical grounds.