

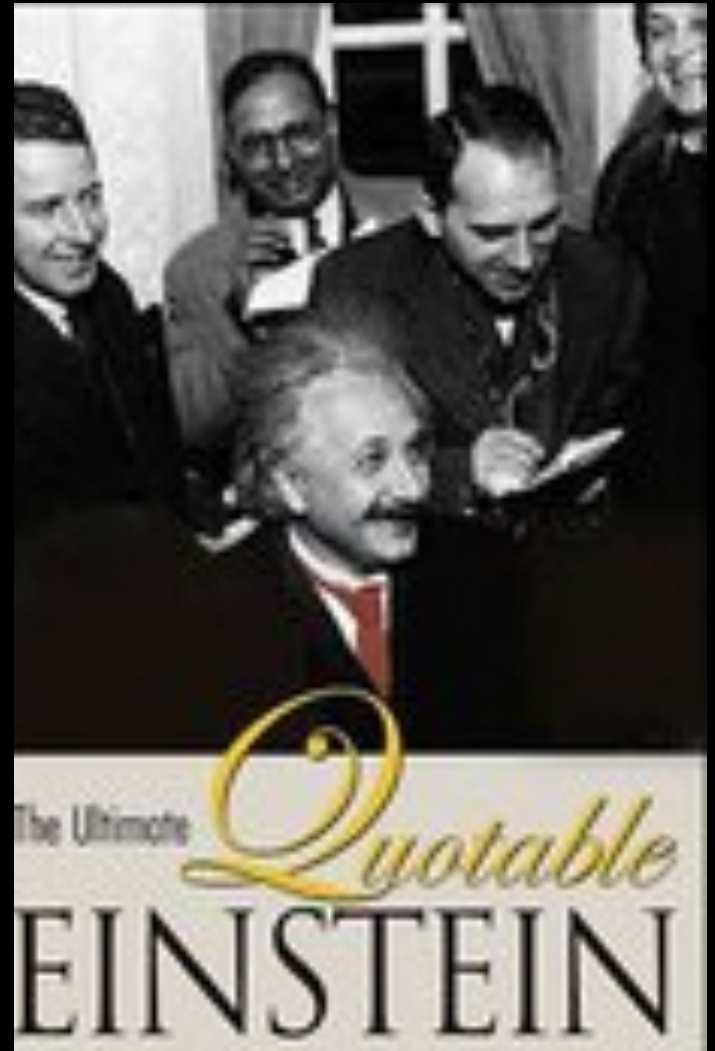
# Simplicity

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# How Far should we go?

- “Everything should be made **as simple as possible**, but no **simpler.**”
- Attributed to A E but not verified



# Spencer 1933 LectureMethod



## On the Method of Theoretical Physics\*

BY

ALBERT EINSTEIN

**I**F YOU wish to learn from the theoretical physicist anything about the methods which he uses, I would give you the following piece of advice: Don't listen to his words, examine his achievements. For to the discoverer in that field, the constructions of his imagination appear so necessary and so natural that he is apt to treat them not as the creations of his thoughts but as given realities.

# What He Really Said!

The basic concepts and laws which are not logically further reducible constitute the indispensable and not rationally deducible part of the theory. It can scarcely be denied that the supreme goal of all theory is to make the irreducible basic elements as simple and as few as possible without having to surrender the adequate representation of a single datum of experience.

# Simple Simplicity Principles

1. Simplicity is a defined view of a complex system
2. Simplicity can be measured in several ways
3. You can design systems to be simple to quantified degrees, of defined kinds of simplicity
4. The cost of making a system simple from one stakeholder's viewpoint, might be extreme complexity from another viewpoint
5. Complexity might be a price you pay for simplicity elsewhere

# Simple Simplicity Principles 2

- 6. The simplest simplicity principle is that simplicity might be complex
- 7. Simplicity is a design tactic to achieve some other aim (such as usability, portability, maintainability)
- 8. You cannot know how simple your design must be until you know the required level of system qualities, that are your 'simplicity drivers'
- 9. The cost of simplicity is the cost of the design for simplicity
- 10. Simplicity might cost more than the benefits of the objectives you have stated as requirements.

# The Unifying Simplicity Principle

- Simplicity might be complex