

# $E=mc^2 = E=m$ : The Constants Illusion Exposed

## Why Einstein's c-constant conceals the fundamental error

### From Dynamic Ratios to the Constants Illusion

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### **Zusammenfassung**

This work reveals the central point of Einstein's relativity theory:  $E=mc^2$  is mathematically identical to  $E=m$ . The only difference lies in Einstein's treatment of  $c$  as a constant instead of a dynamic ratio. By fixing  $c = 299,792,458 \text{ m/s}$ , the natural time-mass duality  $T \cdot m = 1$  is artificially frozen, leading to apparent complexity. The T0 theory shows:  $c$  is not a fundamental law of nature, but only a ratio that must be variable if time is variable. Einstein's error was not  $E=mc^2$  itself, but the constant-setting of  $c$ .

### **Inhaltsverzeichnis**

# 1 The Central Thesis: E=mc<sup>2</sup> = E=m

The Fundamental Recognition

**E=mc<sup>2</sup> and E=m are mathematically identical!**

The only difference: Einstein treats c as a constant, although c is a dynamic ratio.

**Einstein's error:**  $c = 299,792,458 \text{ m/s} = \text{constant}$

**T0 truth:**  $c = L/T = \text{variable ratio}$

## 1.1 The Mathematical Identity

In natural units:

$$E = mc^2 = m \times c^2 = m \times 1^2 = m \quad (1)$$

This is not an approximation - this is exactly the same equation!

## 1.2 What is c really?

$$c = \frac{\text{Length}}{\text{Time}} = \frac{L}{T} \quad (2)$$

c is a ratio, not a natural constant!

# 2 Einstein's Fundamental Error: The Constant-Setting

## 2.1 The Act of Constant-Setting

Einstein set:  $c = 299,792,458 \text{ m/s} = \text{constant}$

What does this mean?

$$c = \frac{L}{T} = \text{constant} \Rightarrow \frac{L}{T} = \text{fixed} \quad (3)$$

Implication: If L and T can vary, their **ratio** must remain constant.

## 2.2 The Problem of Time Variability

Einstein recognized himself: Time dilates!

$$t' = \gamma t \quad (\text{time is variable}) \quad (4)$$

But simultaneously he claimed:

$$c = \frac{L}{T} = \text{constant} \quad (5)$$

This is a logical contradiction!

## 2.3 The T0 Resolution

**T0 insight:**  $T \cdot m = 1$

This means:

- Time **T must** be variable (coupled to mass)
- Therefore  $c = L/T$  **cannot** be constant
- $c$  is a **dynamic ratio**, not a constant

### 3 The Constants Illusion: How it Works

#### 3.1 The Mechanism of the Illusion

**Step 1:** Einstein sets  $c = \text{constant}$

$$c = 299,792,458 \text{ m/s} = \text{fixed} \quad (6)$$

**Step 2:** Time becomes frozen "by this

$$T = \frac{L}{c} = \frac{L}{\text{constant}} = \text{apparently determined} \quad (7)$$

**Step 3:** Time dilation becomes mysterious effect "

$$t' = \gamma t \quad (\text{why?} \rightarrow \text{complicated relativity theory}) \quad (8)$$

#### 3.2 What Really Happens (T0 View)

**Reality:** Time is naturally variable through  $T \cdot m = 1$

**Einstein's constant-setting** freezesthis natural variability artificially  
**Result:** One needs complicated theory to repair the frozen "dynamics

### 4 c as Ratio vs. c as Constant

#### 4.1 c as Natural Ratio (T0)

$$c(x, t) = \frac{L(x, t)}{T(x, t)} \quad (9)$$

**Properties:**

- $c$  varies with location and time
- $c$  follows the time-mass duality
- No artificial constants
- Natural simplicity:  $E = m$

#### 4.2 c as Artificial Constant (Einstein)

$$c = 299,792,458 \text{ m/s} = \text{constant everywhere} \quad (10)$$

**Problems:**

- Contradiction to time dilation
- Artificial freezing of time dynamics
- Complicated repair mathematics needed
- Inflated formula:  $E = mc^2$

## 5 The Time Dilation Paradox

### 5.1 Einstein's Contradiction Exposed

Einstein claims simultaneously:

$$c = \text{constant} \quad (11)$$

$$t' = \gamma t \quad (\text{time varies}) \quad (12)$$

But:

$$c = \frac{L}{T} \quad \text{and} \quad T \text{ varies} \quad \Rightarrow \quad c \text{ cannot be constant!} \quad (13)$$

### 5.2 Einstein's Hidden Solution

Einstein solves the contradiction through:

- Complicated Lorentz transformations
- Mathematical formalisms
- Space-time constructions
- **But the logical contradiction remains!**

### 5.3 T0's Natural Solution

No contradiction in T0:

$$T \cdot m = 1 \quad \Rightarrow \quad \text{time is naturally variable} \quad (14)$$

$$c = \frac{L}{T} \quad \Rightarrow \quad c \text{ is naturally variable} \quad (15)$$

No constant-setting → No contradictions → No complicated repair mathematics

## 6 The Mathematical Demonstration

### 6.1 From E=mc<sup>2</sup> to E=m

Starting equation:  $E = mc^2$

c in natural units:  $c = 1$

Substitution:

$$E = mc^2 = m \times 1^2 = m \quad (16)$$

Result:  $E = m$

## 6.2 The Reverse Direction: From E=m to E=mc<sup>2</sup>

Starting equation:  $E = m$

Artificial constant introduction:  $c = 299,792,458 \text{ m/s}$

Inflating the equation:

$$E = m = m \times 1 = m \times \frac{c^2}{c^2} = m \times c^2 \times \frac{1}{c^2} \quad (17)$$

If one defines  $c^2$  as conversion factor":

$$E = mc^2 \quad (18)$$

This shows:  $E = mc^2$  is only  $E = m$  with artificial inflation factor  $c^2$ !

## 7 The Arbitrariness of Constant Choice: c or Time?

### 7.1 Einstein's Arbitrary Decision

The Fundamental Choice Option

One can choose what should be constant"!

Option 1 (Einstein's choice):  $c = \text{constant} \rightarrow \text{time becomes variable}$

Option 2 (alternative):  $\text{time} = \text{constant} \rightarrow c \text{ becomes variable}$

Both describe the same physics!

### 7.2 Option 1: Einstein's c-constant

Einstein chose:

$$c = 299,792,458 \text{ m/s} = \text{constant (defined)} \quad (19)$$

$$t' = \gamma t \quad (\text{time becomes automatically variable}) \quad (20)$$

Language convention:

- Speed of light is universally constant"
- Time dilates in strong gravitational fields"
- Clocks run slower at high velocities"

### 7.3 Option 2: Time-constant (Einstein could have chosen)

Alternative choice:

$$t = \text{constant (defined)} \quad (21)$$

$$c(x, t) = \frac{L(x, t)}{t} = \text{variable} \quad (22)$$

Alternative language convention:

- Time flows equally everywhere"
- Speed of light varies with location"
- Light becomes slower in strong gravitational fields"

## 7.4 Mathematical Equivalence of Both Options

Both descriptions are mathematically identical:

| Phenomenon     | Einstein view           | Time-constant view |
|----------------|-------------------------|--------------------|
| Gravitation    | Time slows down         | Light slows down   |
| Velocity       | Time dilation           | c-variation        |
| GPS correction | Clocks run differently" | c is different"    |
| Measurements   | Same numbers            | Same numbers       |

Tabelle 1: Two views, identical physics

## 7.5 Why Einstein Chose Option 1

Historical reasons for Einstein's decision:

- **Michelson-Morley**: c seemed locally constant
  - **Aesthetics**: Universal constant bounded elegant
  - **Tradition**: Newtonian constant physics
  - **Conceivability**: c-constancy easier to imagine than time constancy
  - **Authority effect**: Einstein's prestige fixed this choice
- But it was only a convention, not a natural law!**

## 7.6 T0's Overcoming of Both Options

**T0 shows**: Both choices are arbitrary!

$$T \cdot m = 1 \quad (\text{natural duality without constant constraint}) \quad (23)$$

**T0 insight**:

- **Neither** c nor time are really constant
- **Both** are aspects of the same  $T \cdot m$  dynamics
- **Constancy** is only definition convention
- **$E = m$**  is the constant-free truth

## 7.7 Liberation from Constant Constraint

Instead of choosing between:

- c constant, time variable (Einstein)
- Time constant, c variable (alternative)

**T0 chooses**:

- **Both dynamically coupled** via  $T \cdot m = 1$
- **No arbitrary fixations**
- **Natural ratios** instead of artificial constants

## 8 The Reference Point Revolution: Earth → Sun → Nature

### 8.1 The Reference Point Analogy: Geocentric → Heliocentric → T0

The Reference Point Revolution: From Earth → Sun → Nature

**Geocentric (Ptolemy):** Earth at center

- Complicated epicycles needed
- Works, but artificially complicated

**Heliocentric (Copernicus):** Sun at center

- Simple ellipses
- Much more elegant and simple

**T0-centric:** Natural ratios at center

- $T \cdot m = 1$  (natural reference point)
- Even more elegant:  $E = m$

**Einstein's c-constant corresponds to the geocentric system:**

- **Human** reference point at center (like Earth at center)
- **Complicated** mathematics needed (like epicycles)
- **Works** locally, but artificially inflated

**T0's natural ratios correspond to the heliocentric system:**

- **Natural** reference point at center (like Sun at center)
- **Simple** mathematics (like ellipses)
- **Universally** valid and elegant

### 8.2 Why We Need Reference Points

Reference points are necessary and natural:

- **For measurements:** We need standards for comparison
- **For communication:** Common basis for exchange
- **For technology:** Practical applications require units
- **For science:** Reproducible experiments need standards

The question is not WHETHER, but WHICH reference point:

| System       | Reference Point | Complexity        | Elegance |
|--------------|-----------------|-------------------|----------|
| Geocentric   | Earth           | Epicycles         | Low      |
| Heliocentric | Sun             | Ellipses          | High     |
| Einstein     | c-constant      | Relativity theory | Medium   |
| T0           | $T \cdot m = 1$ | $E = m$           | Maximum  |

Tabelle 2: Reference point systems comparison

### 8.3 The Right vs. Wrong Reference Point

Einstein's error was not to choose a reference point:

- But to choose the wrong reference point!

Wrong reference point (Einstein):  $c = 299,792,458 \text{ m/s} = \text{constant}$

- Based on human definition
- Leads to complicated mathematics
- Creates logical contradictions

Right reference point (T0):  $T \cdot m = 1$

- Based on natural ratio
- Leads to simple mathematics:  $E = m$
- No contradictions, pure elegance

## 9 When Something Becomes Constant"



The Fundamental Reference Point Problem

[colback=red!5!white,colframe=red!75!black,title=The Reference Point Illusion] Something only becomes constant"when we define a reference point!

Without reference point: All ratios are relative and dynamic

With reference point: One ratio becomes artificially fixed"

Einstein's error: He defined an absolute reference point for c

!

### 9.1 The Natural Stage: Everything is Relative

Before any reference point definition:

$$c_1 = \frac{L_1}{T_1} \tag{24}$$

$$c_2 = \frac{L_2}{T_2} \tag{25}$$

$$c_3 = \frac{L_3}{T_3} \tag{26}$$

$$\vdots \tag{27}$$

All c-values are relative to each other. None is constant".



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## Why c-Constancy is Not Provable

## The Fundamental Measurement Problem

To measure  $c$ , we need:

$$c = \frac{L}{T}$$

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 $\#I\#I\#I*$

But: We measure L and T with the same physical processes that depend on c!

Circular problem: Light measures distances  $\rightarrow c$  determines L Atomic clocks use EM transitions  $\rightarrow c$  influences T Then we measure  $c = L/T$   $\rightarrow$  We measure  $c$  with  $c$ !

## The Gauge Definition Problem

Since 1983: 1 meter = distance light travels in  $1/299,792,458$  s

$c = 299,792,458$  m/s (not measured, but defined!)

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 $\#I\#I\#I*$

One cannot prove "what one has defined!"

## The Systematic Compensation Problem

If  $c$  varies, ALL measuring devices vary equally: Laser interferometers: use light ( $c$ -dependent)  
 Atomic clocks: use EM transitions ( $c$ -dependent) Electronics: uses EM signals ( $c$ -dependent)

Result: All devices automatically compensate the c-variation!

## The Burden of Proof Problem

Scientifically correct: One cannot prove that something is constant One can only show that it appears constant within measurement precision Each new precision level could show variation Einstein's c-constancy"was belief, not proof!

T0 Prediction for Precise Measurements

T0 predicts: At highest precision one will find:

$$c(x,t) = c_0 \left( 1 + \xi \times \frac{T(x,t) - T_0}{T_0} \right)$$

with  $\xi = 1.33 \times 10^{-4}$  (T0 parameter)

c varies tiny ( $\sim 10^{-15}$ ), but measurable in principle!

#### Ontological Consideration: Calculations as Constructs

## The Fundamental Epistemological Limit

## 9.6 The Circular Error: Humans Define Their Own Constants"

They can at best give a certain idea of reality.

## The Pragmatic Consequence

Since all theories are constructs:

Evaluation criteria are: Simplicity (fewer assumptions) Consistency (no contradictions) Predictive power (testable consequences) Elegance (aesthetic criteria) Unity (fewer separate domains) By all these criteria T0 is "better than Einstein - but not absolutely true".

## The Ontological Humility

The deepest insight: Reality itself is inaccessible All theories are human constructs Mathematical consistency proves no ontological truth The best we have: Simpler, more consistent constructs Einstein's error was not only the c-constant setting, but also the claim to absolute truth of his mathematical constructs.

To's advantage is not absolute truth, but relative superiority as a thought model.

## The Practical Consequences

Why  $E=mc^2$  "Works"

$E=mc^2$  works because: It is mathematically identical to  $E = m c^2$  compensates the frozen time dynamics. The T0 truth is unconsciously contained. Local approximations usually suffice.

When  $E=mc^2$  Fails

The constants illusion breaks down at: Very precise measurements Extreme conditions (high energies/masses) Cosmological scales Quantum gravity

T0's Universal Validity

$E = mc^2$  is valid everywhere and always: No approximations needed No constant assumptions  
Universal applicability Fundamental simplicity

## The Correction of Physics History

Einstein's True Achievement  
Einstein's actual discovery was:

$$E = m \quad (\text{in natural form})$$

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#I#I#I\*  
His error was

$$E = mc^2 \quad (\text{with artificial constant inflation})$$

The Historical Irony

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The Epistemological Humility

T0 does NOT claim to be \80\344bsolute truth."

T0 only says: "Here is a simpler construct""With fewer arbitrary assumptions" That is more consistent than Einstein's construct"\80\304nd makes more testable predictions"

But ultimately T0 also remains a human thought structure!

nstein discovered the fundamental simplicity  $E = m$ ,

but hid it behind the constants illusion  $E = mc^2$ !

The physics world celebrated the complicated form and overlooked the simple truth.

!

## 12 Conclusions

### 12.1 The Central Recognition

The Fundamental Truth

**E=mc<sup>2</sup> = E=m**

Einstein's constante is in truth a variable ratio.

The constant-setting was Einstein's fundamental error.

T0 corrects this error by returning to natural variability.

### 12.2 Physics After the Constants Illusion

The future of physics:

- No artificial constants
- Dynamic ratios everywhere
- Living, variable natural laws
- Fundamental simplicity:  $E = m$

### 12.3 Einstein's Corrected Legacy

**Einstein's true discovery:**  $E = m$  (energy-mass identity)

**Einstein's error:** Constant-setting of c

**T0's correction:** Return to natural form  $E = m$

**Einstein was brilliant - he just stopped one step too early!**

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