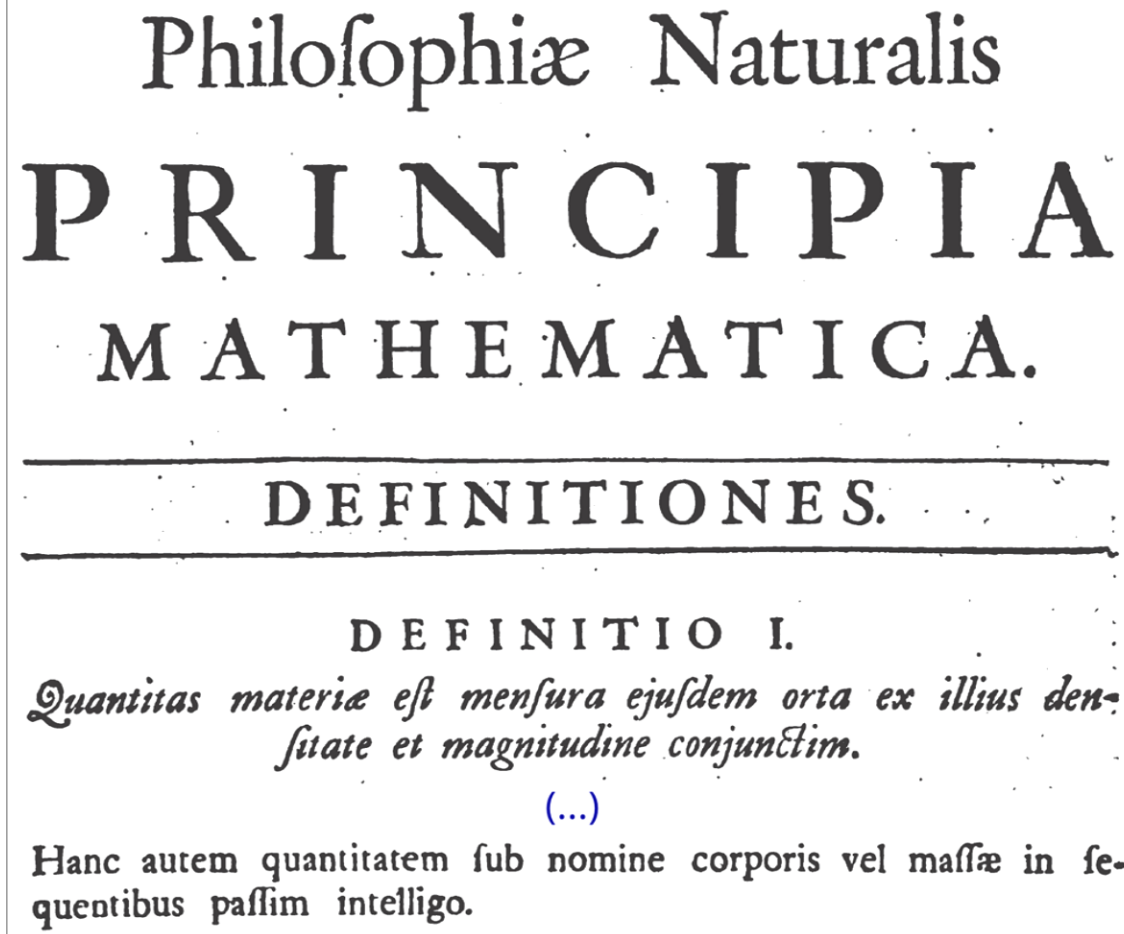


Mass.



Amount of matter is a measure equal to what arises from its density and size combined.

(...)

Moreover, it is this quantity that I under the name **body** or **mass** mean in what follows.

Motion.

DEFINITIO II.

Quantitas motus est mensura ejusdem orta ex velocitate et quantitate materiae conjunctim.

Amount of motion is a measure equal to what arises from **velocity** and **amount of matter** combined.

$$\vec{p} = m\vec{v}$$

Inertia.

DEFINITIO III.

Materiae vis insita est potentia resistendi, qua corpus unumquodque, quantum in se est, perseverat in statu suo vel quiescendi vel movendi uniformiter in directum.

Hæc semper proportionalis est suo corpori, neque differt quicquam ab inertia massæ, nisi in modo concipiendi. Per inertiam materiae fit, ut corpus omne de statu suo vel quiescendi vel movendi difficulter deturbetur.

An **innate power** of matter is the power of resistance, by which each body, as far as it is in it, perseveres in its state of either resting or uniformly moving straight ahead.

This is always proportional to its body, nor does it differ in any way from the mass's **inertia**, except in the way of conception.

Due to the **inertia of matter**, each body is **with difficulty disturbed from its state** of either resting or moving.

Mass is an **amount** of **matter**.

Inertia is a **property** of **mass**.

*These two are often confused,
even by ISAACUS NEWTONUS himself...*

Although DEFINITIO II. clearly says **amount of matter** (i.e. **mass**), DEFINITIONES III. & IV. **explicitly mention vis insita = innate power** to resist change of motion, i.e. **inertia**.

Driving force & **inertia**.

DEFINITIO IV.

*Vis impressa est actio in corpus exercita, ad mutandum ejus
statum vel quiescendi vel movendi uniformiter in directum.*

Consistit hæc vis in actione sola, neque post actionem permanet
in corpore. Perseverat enim corpus in statu omni novo per solam
vim inertiae.

**An *impressed force* is an *action* exerted upon a body
in order to change its state of either resting
or uniformly moving straight ahead.**

This **force** exists in the **action** only and it does
not remain in the body when the **action** is over.

For a body perseveres in each new state
solely by the power of **inertia**.

A X I O M A T A,

S I V E

L E G E S M O T U S.

L E X I.

(...)

L E X II.

*Mutationem motus proportionalem esse vi motrici impressæ,
& fieri secundum lineam rectam qua vis illa imprimitur.*

LEX II.

A *change of motion* is proportional to the impressed driving *force*, & is made following the straight line along which that force is impressed.

$$\vec{F} = \dot{\vec{p}}$$

It's what DEFINITIO IV. calls *vis impressa* = *actio* and this *actio* also is what LEX III. is all about.

The only way to match DEF II.
to DEFs III. & IV. & LEX II.:

In:

$$\vec{F} = \dot{\vec{p}} = m\vec{a}$$

the ***m*** definitely stands
for ***inertia*** & ***not mass***.

m is *not mass*, but *inertia*:

$$dW = F ds = F v dt = m a v dt = m \frac{dv}{dt} v dt = m v dv$$

$$E_k = \int_0^v m v dv = \frac{1}{2} m v^2 \Big|_0^v = \frac{1}{2} m v^2$$

Einstein found:

$$E_k = (\gamma - 1) m c^2$$

It's all about *inertia*, *not mass*!

Is γm *relativistic mass*?

A *frame dependent relativistic amount of matter*?

Can *matter frame dependently come into existence due to a frame dependent velocity*?

γm is *relativistic inertia!*

Einstein literally said:
*Mass and energy are but different
manifestations of the same thing.*

<https://www.youtube.com/watch?v=Y-W-w8yNiKU&t=135s>
(literally hear him say it him-very-self).

Does $E = mc^2$ indeed
say **energy is mass?**

I say:

Energy has inertia!

Does the **Higgs field** indeed give *particles* their **mass**?

Doesn't the term *particle* simply imply it is **matter**, albeit just a tiny **amount**?

The **Higgs field** gives **mass** its **inertia!**

*Conservation of **mass**?*

*Conservation of **matter**?*

*Conservation of **energy**?*

Ever heard of *annihilation*
turning **matter** into *photons*?

Aren't *photons* **energy** quanta?

As said: **energy** has *inertia*!

Conservation of inertia!

Subluminal inertia

manifests as **particles**, i.e.
(quantised) **mass, matter**
having **kinetic energy**.

At the very speed of light,
inertia manifests as (el.mag.)
energy quanta, photons.

But what is *inertia*?

Can **YOU**  derive it from
underlying ascertained truths?

I can only refer to

DEFINITIO III. ISAACI NEWTONI:

***resistance against
change of motion.***

Please try to stop

saying

mass

if it's actually

inertia .

Did you know?

The word ***matter***¹ comes from
Latin ***mater*** = ***mother***.

Latin ***massa*** = ***bulk, load*** comes from
Ancient Greek ***μᾶζα*** (*mâza*) = ***bread***.

Latin ***inertia***¹ [from ***in-*** (*not*) + ***ars*** (*art, skill*)]
= ***idleness, inactivity, lazyness,***
unskillfulness.

¹ Dutch: ***materie*** & ***traagheid*** (*traag* ≠ *langzaam!*).