

Universal Physics Journal

Article X: Universal Physics Rules for Force & Motion

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Purpose

My purpose in Article X is to write, for the science of Universal Physics, a set of rules for force and motion that will be effective in predicting all manner of Universal events.

Article X

Rule 1

There are two states of motion for an object; (1) the inactive state of rest-motion where the object's velocity remains constant, when compared to a non-accelerating frame of reference, indicating the absence of an acceleration/Action force; and (2) the active state of acceleration where the object's velocity is continually changing, when compared to a non-accelerating frame of reference, indicating the presence of an acceleration/Action force.

Rule 2

In the absence of an acceleration/Action force, an object has no choice but to exist in the inactive state of rest-motion, which is the default state of motion for which no cause exists.

Rule 3

An object's inactive state of rest-motion is absolute for regardless of its velocity of motion, a non-accelerating frame of reference can always be established within which the object will inactively remain at rest.

The inactive nature of rest-motion means that there is no difference whatsoever between the properties of an object traveling in the inactive state of rest-motion at one velocity through an empty space, compared to the properties of the same object traveling in the inactive state of rest-motion at any other velocity through the same empty space.

Rule 4

An absolute acceleration/Action force is always immediately present as the cause, including rate and direction, of an object's acceleration.

(a) This a/A force may be all or just a portion of an external (contact) force that is being impressed by another object against the surface of the test object's matter, with the a/A force portion being the force responsible for causing the test object's rate and direction of acceleration in accordance with Isaac Newton's formula: Absolute Force = mass * acceleration.

(b) This a/A force may also be all or just a portion of the cumulative total of the myriad of internal forces being generated separately within each of the test object's many components of matter with the a/A force portion being the net action force responsible for causing the test object's rate and direction of acceleration in accordance with Newton's formula.

(c) Finally this a/A force may be any combination of external contact a/A forces and the internal generated acceleration/Action forces, as described in (a) or (b), with the combined a/A force being the net action force responsible for causing the test object's rate and direction of acceleration again in accordance with Newton's formula: Absolute Force = mass * acceleration.

Rule 5

An object's active state of acceleration is absolute since the measurement of the object's rate of acceleration within every possible non-accelerating frame of reference will always yield the same rate.

Rule 6

An object's rate of acceleration is directly proportional to the magnitude of the impressed acceleration/Action force; as determined by the application of Rule 4, and inversely proportional to the quantity of the object's matter (mass).

(a) If the acceleration/Action force impressed against a given object is doubled, in a directly proportional manner, the object's rate of acceleration will double.

(b) If the acceleration/Action force remains constant while the object's quantity of matter is reduced by half, in an inversely proportional manner, the object's rate of acceleration will again double.

Rule 7

(a) Every non-acceleration/Action force finds immediate opposition against another non-acceleration/Action force (or forces) that is (are) equal in magnitude and opposite in direction.

(b) Every acceleration/Action force causes its own immediate support in the form of an acceleration/Reaction force (or forces) that is (are) always equal in magnitude and opposite in direction to the acceleration/Action force; with the effect of the acceleration/Reaction support force so caused serving in no manner to resist or reduce or cancel the ongoing acceleration.

The term "immediate" means present at the location of the action force. Also, acceleration/Reaction forces are the only reaction forces that exist in nature. Thus action/reaction pairs of mutual forces only exist in events where acceleration is present.

Rule 8

The mutual action forces generated within each of two separate bodies caused by the reception of energy emissions sent at the speed of light energy from the other body are always equal in magnitude and generally opposite in direction regardless of any difference that may exist between the mass ratings of each of the two bodies.

As long as the two bodies remain separate (non-contacting) , each mutual action force will find or cause its own terminating support force that is immediately present according to the dictates of Rule 7.

Background

Rule1 is based upon Newton's LAW I as stated in PRINCIPIA with additional recognition of the inactive nature of rest-motion compared to the active nature of acceleration. Also introduced is the specific identification of the acceleration-causing force termed in Universal Physics as the acceleration/Action force. The "when compared to a non-accelerating frame of reference" clause is included to make clear the absolute nature of acceleration and the forces that stand as acceleration's cause. Thus it is a meritless observation when an accelerating observer ignores his or her own absolute rate and absolute direction of absolute acceleration while attempting to determine the absolute rate and absolute direction of absolute acceleration that may, or may not, be present for the object.

Rule 2 is the logical, Galileo inspired, replacement for Aristotle's imaginary "mover" cause and Newton's imaginary "inertia" cause for the causeless default state of rest-motion. An object has no choice but to revert to rest-motion when no acceleration/Action force is present. It does not "tend" to revert to rest-motion when an acceleration/Action force is absent as is often professed. An object has no choice in this matter. The object always reverts to the default state of rest-motion when an acceleration/Action forces is absent. Hopefully, Rule 2 will prevent us from "inventing" a third imaginary "cause" to "explain" the causeless state of rest-motion. Here Galileo saw the only truth there is to see. When acceleration/Action forces are absent, Galileo understood that no change to an object's default state of rest-motion can possibly occur.

Rule 3 makes it clear that an object in rest-motion remains the same object in every way after having its speed of rest-motion changed to any other speed of rest-motion. Rest-motion is but a single state. Rule 3 makes clear this truth which, in turn, reveals the truth that "momentum" and "kinetic energy" are schemes for rating an object's frame-related velocity that, though useful as homocentric rest-motion rating systems, are unreal in nature and therefore conceptually misleading. These man-invented rating schemes are applied to an object, they are not possessed by the object.

Rule 4 and Rule 6 are based upon Newton's LAW II. Newton's "motive" force is replaced with the acceleration/Action force which sharpens our recognition of the active role of this acceleration-causing action force.

Rule 5 wipes away any thoughts that everything is relative. Acceleration of an object is an absolute event being caused by an absolute acceleration/Action force. Isaac Newton understood this truth when he described his rotating bucket of water event. Recognition of Newton's truth opens the door to recognition of many other Universal absolutes such as mass, time and distance. Any "evidence" to the contrary is in need of reexamination from an impartial Universal Physics perspective.

Rule 7 is based primarily upon the first half of Isaac Newton's LAW III. The term "force" is added along with a reference to acceleration/Action forces causing their own immediate support in the form of acceleration/Reaction forces. Finally acceleration/Reaction forces are recognized as the only reaction forces that exist in nature. This means that action/reaction pairs of mutual forces are always acceleration/Action and acceleration/Reaction forces which exist only in events where acceleration is present.

Rule 8 is based upon the second half of Isaac Newton's LAW III. A reference to action-at-a-distance forces being caused by the reception of energy emissions ("spirits emitted") is added. Also added is how one must expect equal action forces to be generated within unequal bodies. Yet one must not expect these mutual action forces to always be directed precisely opposite to each other, especially during long distance gravitational events.

In Newton's LAW III, the two halves of this law are separated by the exclusive connecting word "or" implying that either one half holds true "or" the other half holds true but not both halves holding true at the same time. While this conclusion may be open to debate, its effect is not. A modern example of the misunderstandings caused by the connecting word "or" in Newton's LAW III takes the form of our general recognition of the mutual action forces being generated within the Moon's matter and within Earth's matter. Here we apply the second half of LAW III in predicting the presence of these mutual action forces. But because of the exclusive nature of the connecting word "or", we do not see the need to also apply the first half of LAW III to this action-at-a-distance event. If we did apply the first half of LAW III, we would discover the truth that the myriad of gravitational acceleration/Action forces being generated within each of the Moon's myriad of components of matter are causing their own immediate terminating support through the reactive generation of equal and opposite acceleration/Reaction forces within each same accelerating component of matter. Likewise within Earth's matter. Yet the connecting word "or" appears to have blinded us to this four-force understanding of the Earth/Moon System. Instead we have come to accept that the acceleration/Action force of the Moon's attraction toward Earth is supported not by an immediate acceleration/Reaction force also present within the Moon's matter but instead by a non-immediate acceleration/Action force hundreds of thousands of miles distant from the Moon that is present within Earth's matter. To accept that one such acceleration/Action force can find "support" or "balance" against another acceleration/Action force that is thousands of miles distant across the vacuum of empty space, is to accept as true, that which is Physically impossible. Dividing Newton's LAW III into Rule 7 and Rule 8 should put an end to such errant assumptions.

By dividing the basic truths expressed in Newton's LAW III into Rule 7 and Rule 8, it becomes clear that both Rules apply equally to the mutual action forces present during action-at-a-distance events. Thus while the totals of the distant gravitational acceleration/Action forces being generated within the matter of Earth and likewise within the matter of the much less massive Moon are mutual according to Rule 8, at the same time, each gravitational acceleration/Action force being generated within each component of each body's matter causes the reactive generation of its own immediate equal and opposite support and termination in the form of the acceleration/Reaction force present within each same accelerating component of matter in full accord with Rule 7.

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References

Sir Isaac Newton, 1686, 1729, *Mathematical Principles of Natural Philosophy and His System of the World*, 1934, 1962, PRINCIPIA, University of California Press, Berkeley, Los Angeles, London, page 13.

Newton's LAW I:

Every body continues in its state of rest, or of uniform motion in a right line, unless it is compelled to change that state by forces impressed upon it.

Newton's LAW II:

The change of motion is proportional to the motive force impressed; and is made in the direction of the right line in which that force is impressed.

Newton's LAW III:

To every action there is always opposed an equal reaction: or, the mutual actions of two bodies upon each other are always equal, and directed to contrary parts.

Author's Commentary

Isaac Newton assembled three laws for motion that succeeded in focusing our thoughts and imaginations upon the workings of Universal events. But confusions in their interpretation abound. Three laws of limited scope are no longer sufficient to explain events alongside the new concepts, recognitions, and understandings of Universal Physics. Are eight rules enough? Time will tell.

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