

The Cartoon Laws of Physics

You will note these Laws are particularly applicable Looney Tunes and Merry Melodies (Warner Brothers)

Best site is - <http://remarque.org/~doug/cartoon-physics.html>

(Originally "O'Donnell's Laws of Cartoon Motion", Esquire, 6/80)

[often quoted from "IEEE Institute", 10/94; V.18 #7 p.12]

(Anonymous comments on the main laws that did not appear in the original are marked with parenthesis.)

I: Any body suspended in space will remain in space until made aware of its situation.

Daffy Duck steps off a cliff, expecting further pastureland. He loiters in midair, soliloquizing flippantly, until he chances to look down. At this point, the familiar principle of 32 feet per second per second takes over.

(Exception: This does not apply to cool characters who've never studied law.)

(Appendum: Any species capable of flight, upon distraction of vertigo, will lose ability of flight. Conversely, any two feathers held in each hand and waved will (temporarily) give flight to any character that does so.)

II: Any body in motion will tend to remain in motion until solid matter intervenes suddenly.

Whether shot from a cannon or in hot pursuit on foot, cartoon characters are so absolute in their momentum that only a telephone pole or an outsize boulder retards their forward motion absolutely. Sir Isaac Newton called this sudden termination of motion the stooge's surcease.

III: Any body passing through solid matter will leave a perforation conforming to its perimeter.

Also called the silhouette of passage, this phenomenon is the speciality of victims of directed-pressure explosions and of reckless cowards who are so eager to escape that they

exit directly through the wall of a house, leaving a cookie-cutout-perfect hole. The threat of skunks or matrimony often catalyzes this reaction.

IV: The time required for an object to fall twenty stories is greater than or equal to the time it takes for whoever knocked it off the ledge to spiral down twenty flights to attempt to capture it unbroken.

Such an object is inevitably priceless, the attempt to capture it inevitably unsuccessful.

V: All principles of gravity are negated by fear.

Psychic forces are sufficient in most bodies for a shock to propel them directly away from the earth's surface. A spooky noise or an adversary's signature sound will induce motion upward, usually to the cradle of a chandelier, a treetop, or the crest of a flagpole. The feet of a character who is running or the wheels of a speeding auto need never touch the ground, especially when in flight.

VI: As speed increases, objects can be in several places at once.

This is particularly true of tooth-and-claw fights, in which a character's head may be glimpsed emerging from the cloud of altercation at several places simultaneously. This effect is common as well among bodies that are spinning or being throttled. A 'wacky' character has the option of self-replication only at manic high speeds and may ricochet off walls to achieve the velocity required.

VII: Certain bodies can pass through solid walls painted to resemble tunnel entrances; others cannot.

This trompe l'oeil inconsistency has baffled generations, but at least it is known that whoever paints an entrance on a wall's surface to trick an opponent will be unable to pursue him into this theoretical space. The painter is flattened against the wall when he attempts to follow into the painting. This is ultimately a problem of art, not of science.

(Corollary: Portable holes work.)

VIII: Any violent rearrangement of feline matter is impermanent.

Cartoon cats possess even more deaths than the traditional nine lives might comfortably afford. They can be decimated, spliced, splayed, accordion-pleated, spindled, or disassembled, but they cannot be destroyed. After a few moments of blinking self pity, they reinflate, elongate, snap back, or solidify.

Corollary: A cat will assume the shape of its container.

(Corollary 2: Cartoons cats have the uncanny ability to emit piano sounds when their teeth are transformed into piano keys after having a piano dropped on them.)

IX: Everything falls faster than an anvil.

Examples too numerous to mention from the Roadrunner cartoons.

X: For every vengeance there is an equal and opposite revengeance.

This is the one law of animated cartoon motion that also applies to the physical world at large. For that reason, we need the relief of watching it happen to a duck instead.

Additions added by Internet circulators

(Ed Bell, Syed Towheed, Dave Williams, and others)

If a tree falls on a character, it results in a partially elastic collision, repeatedly bouncing off their head until they are driven into the ground.

It is possible for fire to spread by becoming temporarily animate.

Any alligator, when punched, will fly up in the air returning to the ground as a nice set of matched luggage or perhaps as a nifty pair of boots.

Objects launched into the air need not follow parabolic trajectories.

Intelligence is inversely proportional to body size.

Firearms are relatively ineffectual weapons (unless, of course, your intent is to blacken someones face, make it difficult for them to drink, and hold, water, or remove bills or feathers).

Drawings are real as long as you're not aware they're drawings.

A 'toon's GI-tract will always expand linearly in proportion to the object being swallowed regardless of the object's size.

A vehicle's speed is limited only by the size of the numbers written on the speedometer.

Pretending one is stepping on brakes is as good as having them.

Holes are moveable.

Drawings and constructs warp reality so as to encompass them. This warping of reality often does not extend to the artist or builder.

Amendments

A sharp object will always propel a character upward.

When poked (usually in the buttocks) with a sharp object (usually a pin), a character will defy gravity by shooting straight up, with great velocity.

The laws of object permanence are nullified for "cool" characters.

Characters who are intended to be "cool" can make previously nonexistent objects appear from behind their backs at will. For instance, the Road Runner can materialize signs to express himself without speaking.

Explosive weapons cannot cause fatal injuries.

They merely turn characters temporarily black and smoky.

Gravity is transmitted by slow-moving waves of large wavelengths.

Their operation can be witnessed by observing the behavior of a canine suspended over a large vertical drop. Its feet will begin to fall first, causing its legs to stretch. As the wave reaches its torso, that part will begin to fall, causing the neck to stretch. As the head begins to fall, tension is released and the canine will resume its regular proportions until such time as it strikes the ground.

Dynamite is spontaneously generated in "C-spaces" (spaces in which cartoon laws hold). The process is analogous to steady-state theories of the universe which postulated that the tensions involved in maintaining a space would cause the creation of hydrogen from nothing. Dynamite quanta are quite large (stick sized) and unstable (lit). Such quanta are attracted to psychic forces generated by feelings of distress in "cool" characters (see Amendment B, which may be a special case of this law), who are able to use said quanta to their advantage. One may imagine C-spaces where all matter and energy result from primal masses of dynamite exploding. A big bang indeed.

Any bag, sack, purse, etc. possessed by a cool character is a tesseract - any number of objects of any size may be placed in it or removed from it with no change in its outer dimensions.

Characters can spin around and change into any set of clothes appropriate to the situation.

Rabbits can dig a burrow from here to there in less than 20 seconds and emerge spotlessly clean.

Movements are accompanied by funny sound effects.

Especially eye blinks, which usually are accompanied by xylophone or other percussive noise type tinkles with each blink.

Vehicle Uncertainty Principle:

A vehicle travelling along a straight path which extends to the horizon uninterrupted remains in state of indeterminacy-- existing invisibly at all points along the road simultaneously-- until its waveform is collapsed by a villain entering the road. This causes the vehicle to coalesce into an observable form at that location, maintaining high velocity. Classical cartoon physics take over at this point.

RDB translation into plain English: As soon as Wile E. Coyote steps into the road, the bus appears to run him down.

"Rules we obeyed in the Coyote/Road Runner Series"

From an autobiography of Chuck Jones, creator of the Road Runner cartoons ("Chuck Amuck: The Life And Times Of An Animated Cartoonist", and "That's All Folks: The Art Of Warner Bros. Animation". Copyrights and trademarks C. Jones et Warner Bros)

1. The Road Runner cannot harm the coyote except by going "Beep Beep!"
2. No outside force can harm the Coyote-only his own ineptitude or the failure of the ACME products.
3. The Coyote could stop anytime -- IF he were not a fanatic. "A fanatic is one who redoubles his effort when he has forgotten his aim" -George Santayana.
4. No dialogue ever, except "Beep Beep!"
5. The road Runner must stay on the road -- otherwise, logically, he would not be called Road Runner.
6. All Action must be confined to the natural environment of the two characters -- the Southwest American desert.

7. All material, tools, weapons, or mechanical conveniences must be obtained from the ACME Corporation.
8. Whenever possible, make gravity the Coyote's greatest enemy.
9. The Coyote is always more humiliated than harmed by his failures.
10. The audience's sympathy must remain with the Coyote.