

There is a Pokemon called Wooper. He is a simple-minded fellow, always smiling despite his lack of arms and hands.

He can also learn a move called Mega Punch.

This is a travesty. Not just against common sense, but against the laws of physics themselves. Let's examine the uncertainty principle, which dictates the maximum time for which an energy fluctuation can exist. This is, of course, assuming that Wooper creates its arm out of "nothingness," i.e. vacuum fluctuations. We will assume that Wooper's arm is approximately motionless, despite executing Mega Punch. Motion would only make the resultant catastrophe worse, as we shall soon see.

$$h = 1.05 \times 10^{-34} / 2; \text{ (*}\hbar/2\text{*)}$$

$$c = 3 \times 10^8; \text{ (*speed of light*)}$$

$$m = .05 \times 8.5; \text{ (*mass of Wooper's arm, assuming human proportions (5% total body mass)*)}$$

$$dt[de_] := h / de; \text{ (*uncertainty principle: } \Delta E \Delta t \geq \hbar/2\text{*)}$$

$$dt[m * c^2] \text{ (*How long Wooper's arm can manifest for*)}$$

$$\text{Out[7]= } 1.37255 \times 10^{-51}$$

$$dt[m * c^2] / (5.39 \times 10^{-44}) \text{ (*How much smaller this is than the Planck time*)}$$

$$\text{Out[9]= } 2.54647 \times 10^{-8}$$

As we see, even with the minimum amount of energy required to create one of Wooper's arms, it will only exist for under a millionth of a Planck time. This means that Wooper's punch can move up to 2.55E-8 Planck lengths at lightspeed, incomprehensibly smaller than the radius of an atom. In other words, not enough time to actually punch something, since Wooper's arm can't possibly come into contact with anything in that time.

The above analysis ignores special relativity. At relativistic speeds (close to the speed of light), the energy is related to the rest mass by γmc^2 , which would only serve to increase ΔE and therefore decrease Δt .

Thus, Wooper's dopey, smug smile conceals a terrible secret: the utter disregard for the most fundamental laws of physics that we all hold so dear.

Of course, if you're looking for realism in Pokemon, Wooper oughta knock some sense into you.