BPL Analysis (The Negligence Calculus)

Torts I

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B < PL

B = burden
P = probability
L = loss

B = burden

$$$

measured in dollars*

how much the defendant must spend to undertake the precaution

*or some other unit for comparison

L = loss

$$$

measured in dollars*

how much plaintiffs stand to lose if the preventable accident comes to pass

*or some other unit for comparison, as long as it's the same as the unit for B

L = loss

$$$

measured in dollars*

how much plaintiffs stand to lose if the preventable accident comes to pass

*or some other unit for comparison, as long as it's the same as the unit for B

L = loss

$$$

measured in dollars*

how much people stand to lose if the preventable accident comes to pass

*or some other unit for comparison, as long as it's the same as the unit for B

P = probability

∈ 0…1

measured as a fraction

the likelihood that the preventable accident comes to pass

IF

B < PL

THEN

the defendant is
NEGLIGENT

because the precaution would have been worthwhile from the perspective of society as a whole

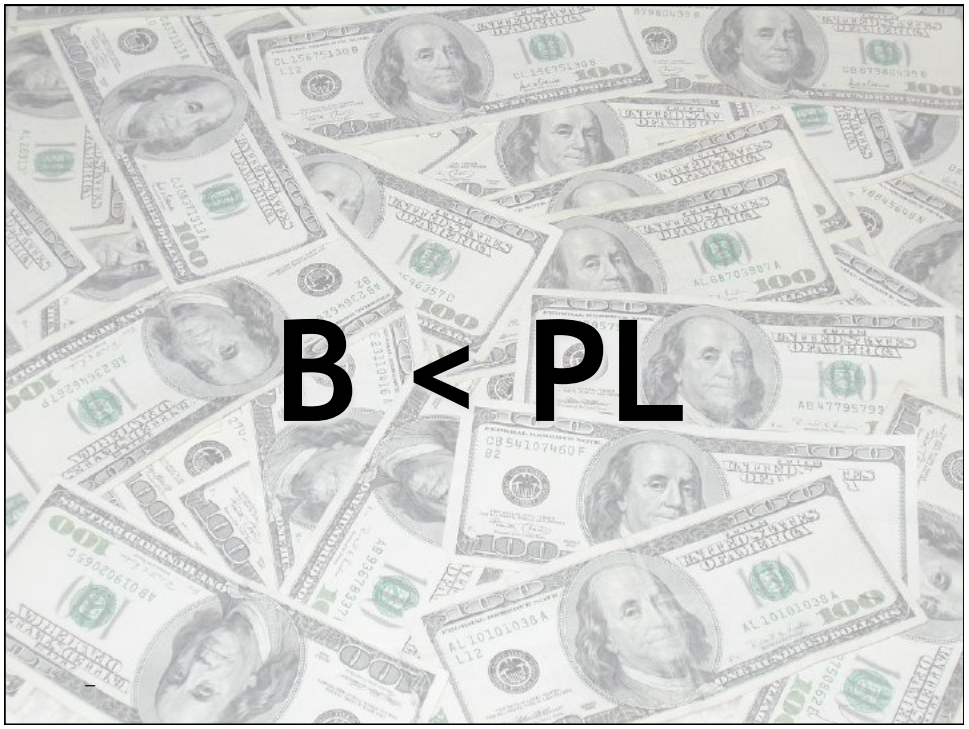
IF

B ≥ PL

THEN

the defendant is
NOT NEGLIGENT

because the precaution was not worthwhile from the perspective of society as a whole



$$N(A,E)|_{\rm moon} \approx 8\times 10^{29} f_{A'} \frac{\Gamma(A,10\ {\rm GeV})}{\Gamma({\rm Fe},10\ {\rm GeV})}\left(\frac{10\ {\rm GeV}}{E}\right)^{1.7} \qquad (14)$$

Using iron, $f_{\rm Fe} = 0.012$ [28], cosmic ray data from Appendix B, and the value of $p = 5\times10^{-12}$, we calculate the number of dangerous strangelets which would have been created on the surface of the moon in several cases of interest,

ranges from 1 to 4.[8] For a suppression factor of 10^{-7} we obtain survival of $\sim 5\times10^{9}$, $\sim 10^{4}$, $\sim 5\times10^{4}$, and $\sim 10^{-1}$ dangerous strangelets for the conditions I–IV during the lifetime of the moon.

II. Dangerous strangelet production in lunar iron-iron collisions at RHIC energies.
Scaling E to 20 TeV, we find $N_{\rm moon}$(Fe-Fe, RHIC) $\approx 10^{11}$

probability bound on RHIC disaster of 10^{-4}

at worst, a one-in-10,000 chance of destroying Earth

) still leaves a comfortable margin of error.