**Fun with Parity!**

**Given:**

1) The parity operator $[P]$ transforms the wavefunction into the appropriate form when the spatial coordinates are inverted $x \to -x$ (cf., mirror reflection in which just the coordinate perpendicular to the mirror is reversed — not left and right as often wrongly stated!) (from page 49 of the RGM lecture notes)

2) Vampires do not reflect in mirrors (according to most mythologies).

Let $\psi(t,x) = \psi_0(x)$ be our vampire wavefunction

Then

$$\psi'(t,x) = P\psi(t,x) = e^{i\phi} \psi_0(-x)$$

$$= e^{i\phi} \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \begin{pmatrix} \psi_0(x) \\ 0 \end{pmatrix}$$

$$= 0$$

In words, 

**Vampires violate parity.**

We can, if we so desire, continue with this train of thought and conclude that vampires must be governed by the weak interaction rather than the electromagnetic interaction, as weak interactions violate parity. Perhaps this explains why they turn into dust when impaled with a wooden stake though the heart—their bodies are held together by the weak interaction (hence the mirror and parity problems) in an unstable equilibrium, which is pushed over the edge by the stake. They dissociate into microscopic particles because the —
_interaction holding them together is, well, weak.

* Hey, if you can't have fun with this stuff, how do you plan to survive the Honours year? 