

- Page 75 : The equation (2.6.4) gives

$$P i H P^{-1} = i H$$

where  $H \equiv P^0$  is the energy operator. If  $P$  were antiunitary and antilinear then it would anticommute with  $i$ , so  $P i H P^{-1} = -H$ . But then for any state  $\Psi$  of energy  $E > 0$ , there would have another state  $P^{-1}\Psi$  of energy  $E < 0$ . **There is no state of negative energy** (energy less than that of the vacuum) **so we are forced to choose the other alternative:  $P$  is linear and unitary, and commutes rather than anticommutes with  $H$ .**

- Page 76 Equation (2.6.6) yields

$$T i H T^{-1} = -i H$$

If we supposed that  $T$  is linear and unitary then we would simply cancel the  $i$ s and find  $T i H T^{-1} = -H$ , **with again the disastrous conclusion** that for any state  $\Psi$  of energy  $E > 0$ , there would have another state  $T^{-1}\Psi$  of energy  $E < 0$ . **To avoid this, we are forced to conclude that  $T$  is antilinear and antiunitary.**

Page 104 : No examples are known of particles that furnish unconventional representations of inversions, so these possibilities will not be pursued further here. From now on, the inversions will be assumed to have conventional actions assumed in section 2.6