

Feynman and Hibbs problem 4-3

Show that the complex conjugate function  $\psi^*$ , defined as the function  $\psi$  with every  $i$  changed to  $-i$ , satisfies

$$\frac{\partial \psi^*}{\partial t} = +\frac{i}{\hbar}(H\psi)^*$$

Start with equation (4.14)

$$\frac{\partial \psi}{\partial t} = -\frac{i}{\hbar}H\psi$$

Conjugate both sides.

$$\left(\frac{\partial \psi}{\partial t}\right)^* = +\frac{i}{\hbar}(H\psi)^*$$

It is well known that conjugation and differentiation commute, hence

$$\left(\frac{\partial \psi}{\partial t}\right)^* = \frac{\partial \psi^*}{\partial t} = +\frac{i}{\hbar}(H\psi)^*$$