

QM3
THE SECOND
4TH PROBLEM

[THIS IS PROBABLY VERY WRONG
BUT IT ILLUSTRATES WHAT I DON'T
GET SO I'LL LEAVE IT HERE]

SPIN 1 \Rightarrow BOSON \Rightarrow EXCHANGE SYMMETRIC.

ASSUMPTION:

IT CAN DECAY ONLY IF IT CAN
BE WRITTEN AS A TENSOR
PRODUCT OF TWO SUCH
PARTICLES

FOR THE COMPOSITE SYSTEM: $|J, m_J\rangle$

$$\text{SPIN} = 1 \Rightarrow J = 1 \Rightarrow M_J = 1, 0$$

$$|1, 1\rangle = |1, 0\rangle |1, 1\rangle - |1, 1\rangle |1, 0\rangle$$

(LET'S NOT CARE ABOUT
NORMALIZATION)

OR

$$|1, 0\rangle = |1, 1\rangle |1, -1\rangle - |1, -1\rangle |1, 1\rangle$$

$|1, 1\rangle$ CAN DECAY INTO $|1, 0\rangle$ & $|1, 1\rangle$

$|1, 0\rangle$ CAN DECAY INTO $|1, 1\rangle$ & $|1, -1\rangle$

These are not identical particles with
spin 0.