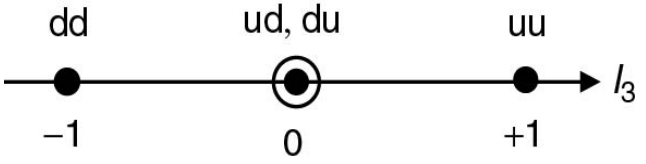
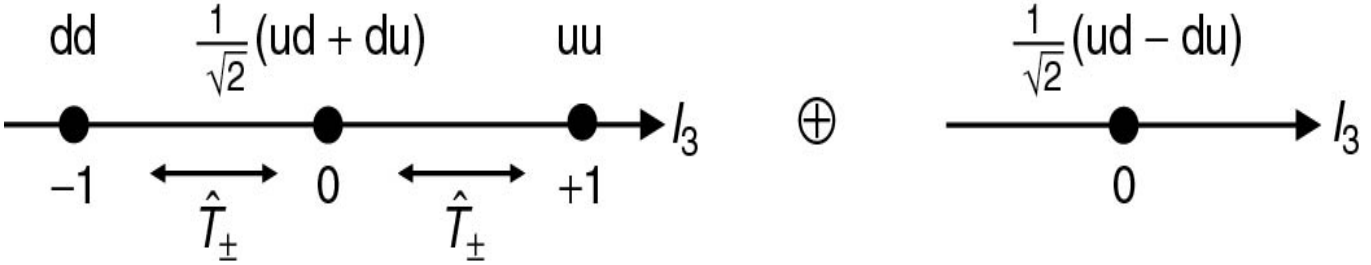
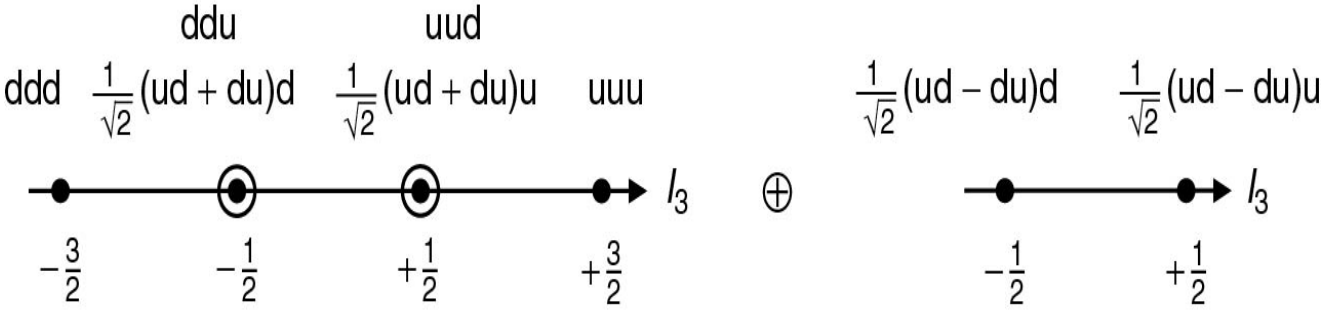
Start with two quark combinations



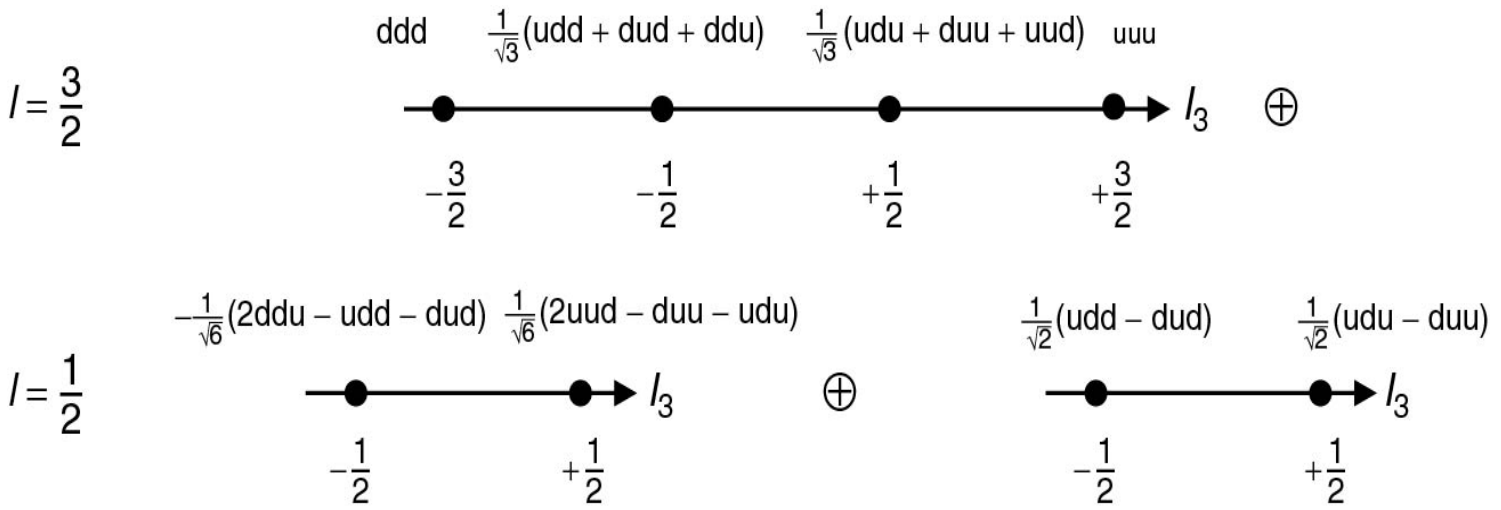

Use ladder operators to define mutliplets



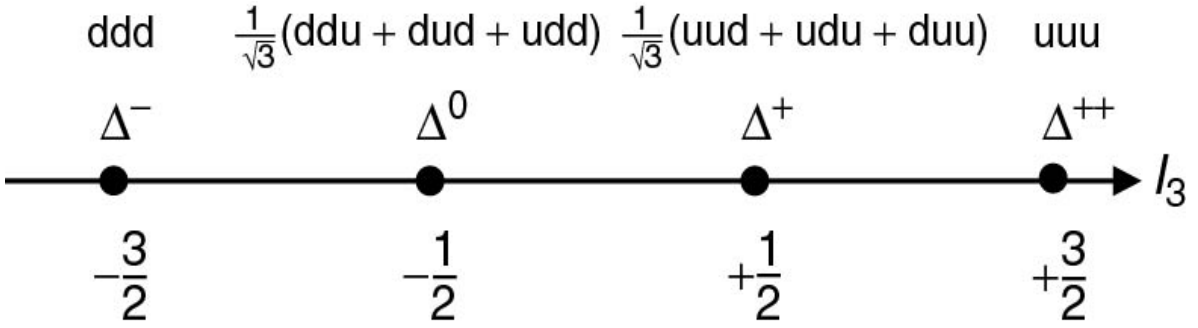

Adding one more quark ….



Use ladder operators to define isospin multiplets

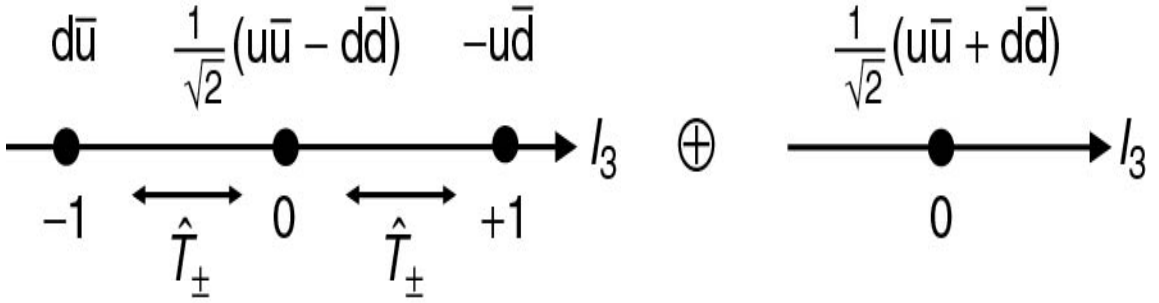


I = 3/2  light quark baryons, S=3/2

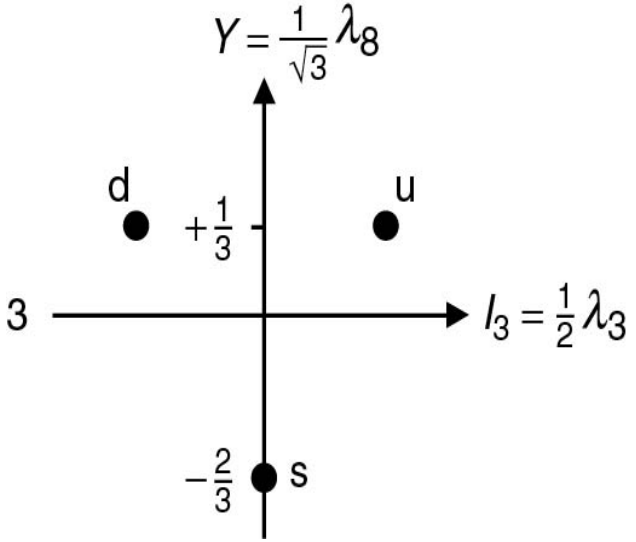


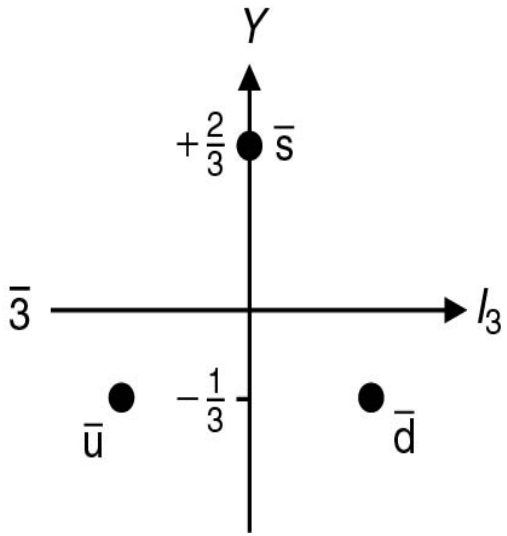
Isospin representation of d and u quarks and anti-d and anti-u quarks


The meson isospin triplet and singulet

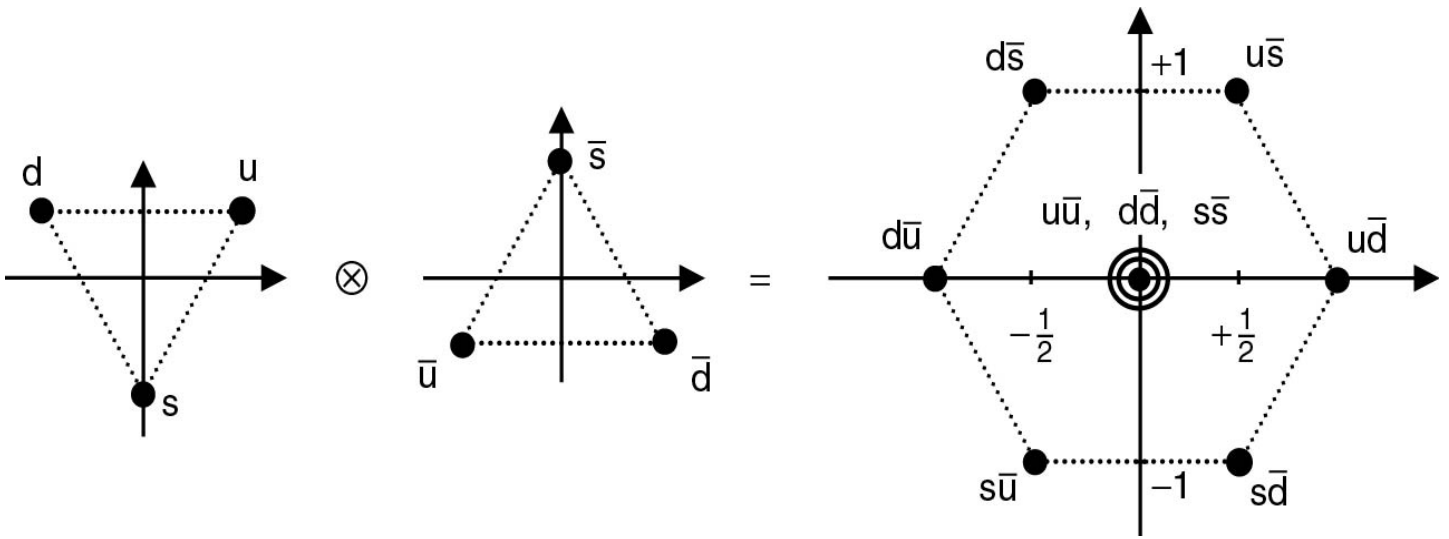


Isospin and hypercharge in SU(3) flavour symmetry for quarks and antiquarks

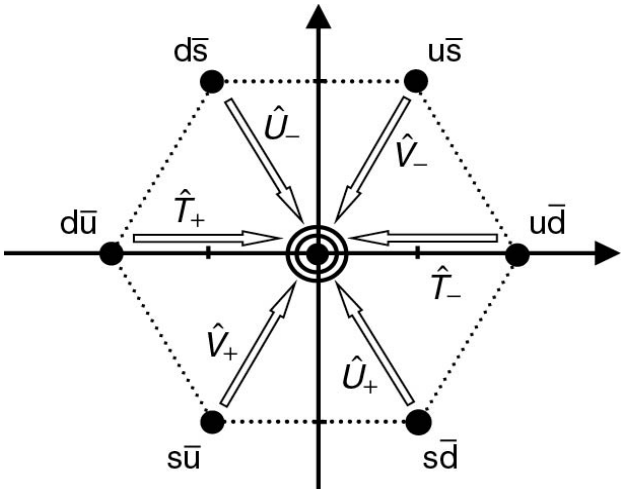


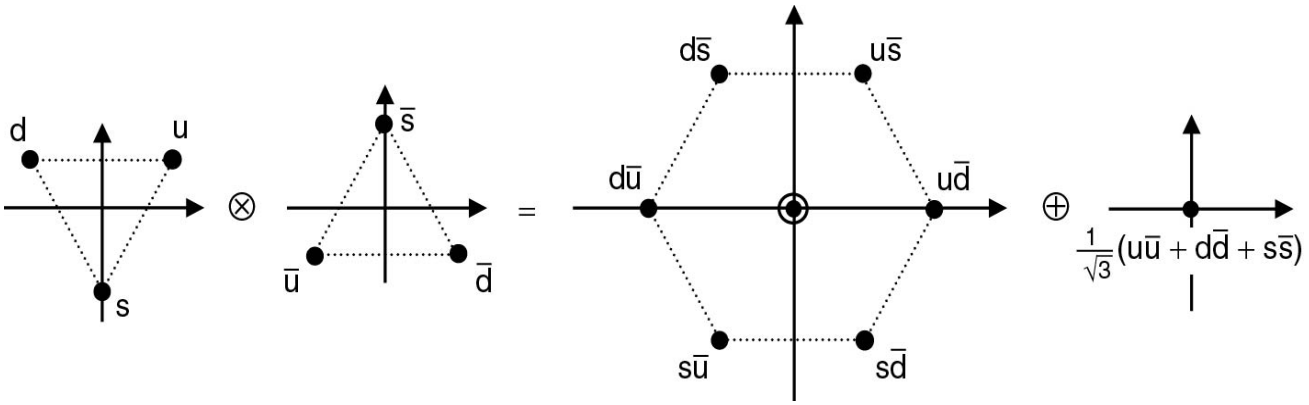
Isospin and hypercharge assignments of the nine possible quark-antiquark combinations

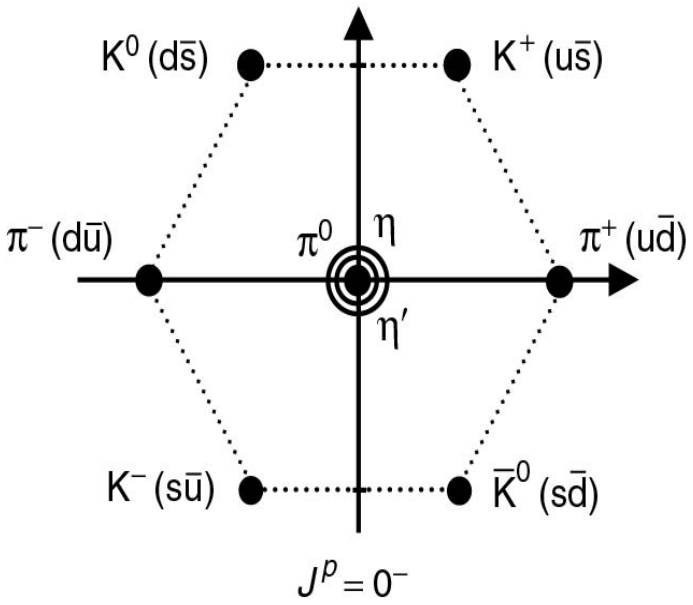


Exploit ladder operators ….

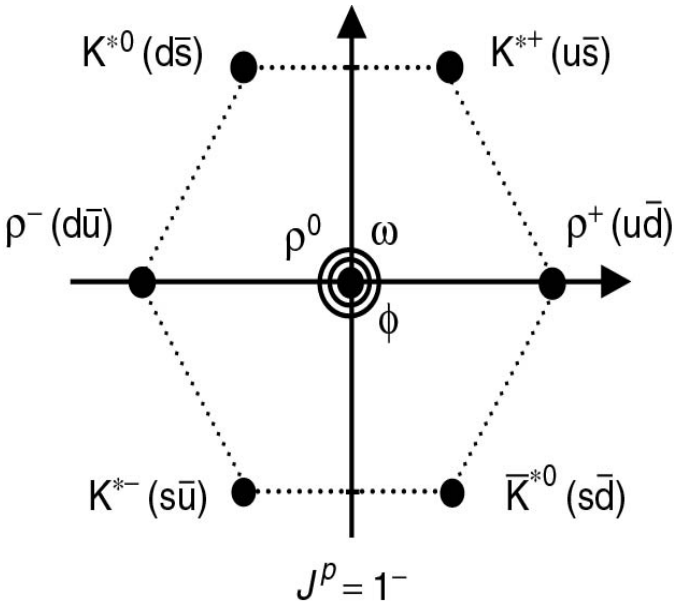



… to define multiplets



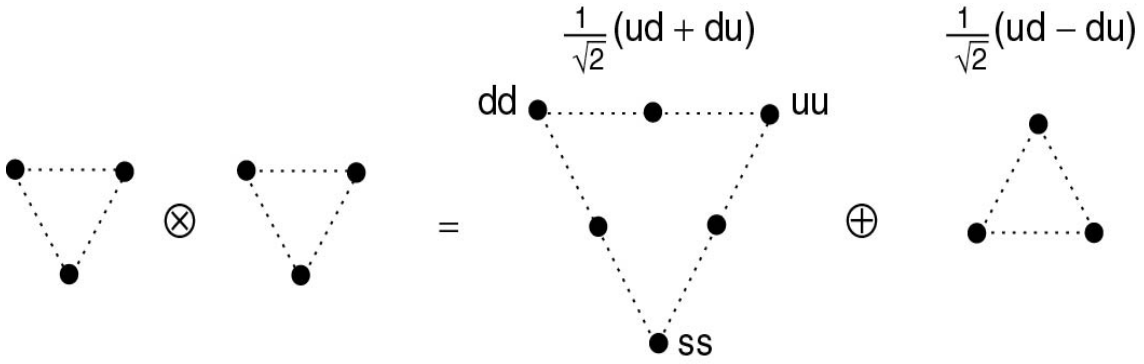



Pseudoscalar mesons, L=0, S=0

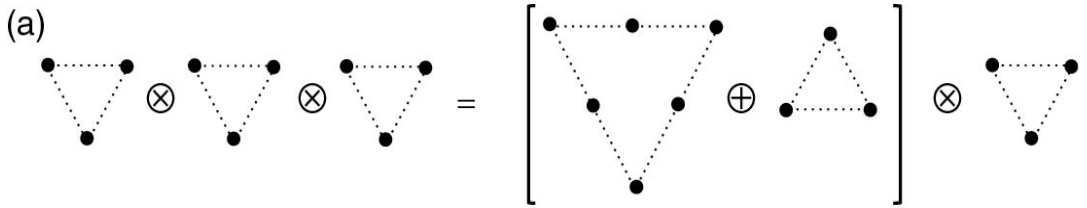


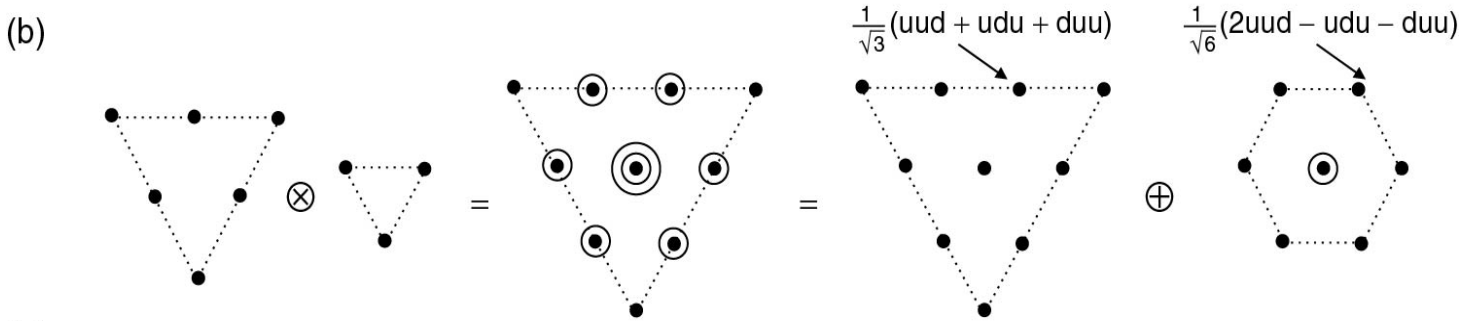

Vector mesons, L=0, S=1

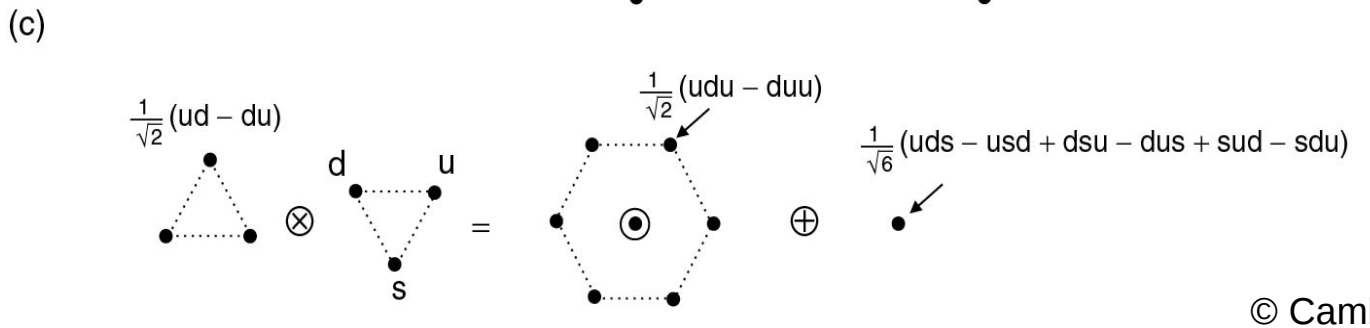
# Multiplet of two quarks in SU(3)




adding one more quark ….



# Observed octet and decuplet of light baryon states