

TABLE 3.4
Symmetry states for three objects in SU(2)

1 u	u d u	d u d	d
2 u	u u d	d d u	d
3 u	d u u	u d d	d
uuu	$\frac{1}{\sqrt{3}}(uud + udu + duu)$	$\frac{1}{\sqrt{3}}(ddu + dud + udd)$	ddd
	$\frac{1}{\sqrt{2}}(ud - du)u$	$\frac{1}{\sqrt{2}}(ud - du)d$	
	$\frac{1}{\sqrt{3}}\left[\frac{(ud + du)u}{\sqrt{2}} - uud\sqrt{2}\right]$	$-\frac{1}{\sqrt{3}}\left[\frac{(ud + du)d}{\sqrt{2}} - ddu\sqrt{2}\right]$	
$S_z = \frac{1}{2}$	$S_z = \frac{1}{2}$	$S_z = -\frac{1}{2}$	$S_z = -\frac{3}{2}$

$\phi_{M,S}\phi_{M,A}$: Mixed symmetry representations for the octet states of three quarks

	$\phi_{M,S}$	$\phi_{M,A}$
P	$\frac{1}{\sqrt{6}}[(ud + du)u - 2uud]$	$\frac{1}{\sqrt{2}}(ud - du)u$
N	$-\frac{1}{\sqrt{6}}[(ud + du)d - 2ddu]$	$\frac{1}{\sqrt{2}}(ud - du)d$
Σ^+	$\frac{1}{\sqrt{6}}[(us + su)u - 2uus]$	$\frac{1}{\sqrt{2}}(us - su)u$
Σ^0	$\frac{1}{\sqrt{6}}\left[s\left(\frac{du + ud}{\sqrt{2}}\right) + \left(\frac{dsu + usd}{\sqrt{2}}\right) - 2\left(\frac{du + ud}{\sqrt{2}}\right)s\right]$	$\frac{1}{\sqrt{2}}\left[\left(\frac{dsu + usd}{\sqrt{2}}\right) - s\left(\frac{ud + du}{\sqrt{2}}\right)\right]$
Σ^-	$\frac{1}{\sqrt{6}}[(ds + sd)d - 2dds]$	$\frac{1}{\sqrt{2}}(ds - sd)d$
Λ^0	$\frac{1}{\sqrt{2}}\left[\frac{dsu - usd}{\sqrt{2}} + \frac{s(du - ud)}{\sqrt{2}}\right]$	$\frac{1}{\sqrt{6}}\left[\frac{s(du - ud)}{\sqrt{2}} + \frac{usd - dsu}{\sqrt{2}} - \frac{2(du - ud)s}{\sqrt{2}}\right]$
Ξ^-	$-\frac{1}{\sqrt{6}}[(ds + sd)s - 2ssd]$	$\frac{1}{\sqrt{2}}[(ds - sd)s]$
Ξ^0	$-\frac{1}{\sqrt{6}}[(us + su)s - 2ssu]$	$\frac{1}{\sqrt{2}}[(us - su)s]$
	ϕ_A	
Λ^0	$\frac{1}{\sqrt{6}}[s(du - ud) + (usd - dsu) + (du - ud)s]$	