

10c. Preservation of the metaplectic quantity d

§3.3.2

The routine **muval** determines the value of d as it occurs in the various terms of an expression, in accordance with (3.31). (We changed the parameter μ to d in the present version of the book, but kept here the old name.)

```
In[ * ]:= Clear[muval , mu]
muval[f_+g_] := {muval[f], muval[g]}
muval[f_g_] := muval[f]+muval[g] // Expand
muval[f_] := 0 /; FreeQ[f, Phi]&&FreeQ[f, tht]
muval[Phi[h_, p_, r_, q_]] := h - 3 r
muval[tht[m_]] := (6 m + 3) eps
```

With use of the computations of 10b:

```
In[ * ]:= (s31 // muval) /. h -> mu - (6 m + 3) eps + 3 r // . {eps ^ 2 -> 1} // Expand
```

```
Out[ * ]:= {{mu, {mu, mu}}, {{mu, {mu, {mu, mu}}}, {mu, mu}}}
```

```
In[ * ]:= (sm31 // muval) /. h -> mu - (6 m + 3) eps + 3 r // . {eps ^ 2 -> 1} // Simplify
```

```
Out[ * ]:= {{mu, {mu, mu}}, {{mu, {mu, {mu, mu}}}, {mu, mu}}}
```

```
In[ * ]:= (sm3m1 // muval) /. h -> mu - (6 m + 3) eps + 3 r // . {eps ^ 2 -> 1} // Simplify
```

```
Out[ * ]:= {mu, {{mu, {mu, {mu, {mu, mu}}}}, mu}}
```

```
In[ * ]:= (sm3m1 // muval) /. h -> mu - (6 m + 3) eps + 3 r // . {eps ^ 2 -> 1} // Simplify
```

```
Out[ * ]:= {mu, {{mu, {mu, {mu, {mu, mu}}}}, mu}}
```