Introduction to the Plethysm Tables

These tables were generated using the package SCHUR. Particular plethysms were calculated as shown in the following calculation of the plethysm for the non-compact group $Sp(6,R)$:-

```
bgw@hel [~/schurc] 12:08>schur
(If you wish to EXIT, enter END)
(If you wish to obtain HELP, enter ?help)
DPrep Mode (with function)
DP>
rep
REP mode
REP>
group spr6
Group is Sp(6,R)
REP>
setlimit16
REP>
set_pwt16
REP>
sb_rev true
REP>
sb_tex true
REP>
columns4
REP>
pl s;0,21
 \+$<s1;(2)>$&$ + \ <s1;(4)>$&$ + \ <s1;(51)>$&$ + \ <s1;(6)>$\cr
      \+$ + \ <s1;(71)>$&$ + \ 2<s1;(8)>$&$ + \ <s1;(91)>$&$ + \ 2<s1;(10\ )>$\cr
      \+$ + \ 2<s1;(11\ 1)>$&$ + \ 2<s1;(12\ )>$&$ + \ 2<s1;(13\ 1)>$
      &$ + \ 3<s1;(14\ )>$\cr
      \+$ + \ 2<s1;(15\ 1)>$&$ + \ 2<s1;(16\ )>$\cr
REP>
```

The group was set as $Sp(6,R)$. The output was limited to terms of weight ≤ 16 by invoking the SCHUR commands ¡setlimit¿ and ¡set_pwt¿. The command ¡sb_rev true¿ was issued to have the output list partitions in order increasing weight while the command ¡sb_tex true¿ instructed SCHUR to output the result in plain TEX with ¡columns¿ set to 4. The resultant output was then capable of being trivially formed into TEX boxes for the Tables.

```
\setbox1=\vbox{\settabs5\columns{
\+$<s;(0)>\otimes\{21\}$&$<s1;(2)>$&$ + \ <s1;(4)>$&$ + \ <s1;(51)>$&$ + \ <s1;(6)>$\cr
      \+&$ + \ <s1;(71)>$&$ + \ 2<s1;(8)>$&$ + \ <s1;(91)>$&$ + \ 2<s1;(10\ )>$\cr
      \+&$ + \ 2<s1;(11\ 1)>$&$ + \ 2<s1;(12\ )>$&$ + \ 2<s1;(13\ 1)>$
      &$ + \ 3<s1;(14\ )>$\cr
      \+&$ + \ 2<s1;(15\ 1)>$&$ + \ 2<s1;(16\ )>$\cr}}
$$\boxit{\boxit{\box1}}$$
```

which when TEX compiled yields

$< s;(0) > \otimes\{21\}$	$< s1;(2) >$	$+ < s1;(4) >$	$+ < s1;(51) >$	$+ < s1;(6) >$
	$+ < s1;(71) >$	$+ 2 < s1;(8) >$	$+ < s1;(91) >$	$+ 2 < s1;(10\ ) >$
	$+ 2 < s1;(11\ 1) >$	$+ 2 < s1;(12\ ) >$	$+ 2 < s1;(13\ 1) >$	$+ 3 < s1;(14\ ) >$
	$+ 2 < s1;(15\ 1) >$	$+ 2 < s1;(16\ ) >$		

These tables were originally compiled to gain insight into plethysms for non-compact groups and represents the first such compilation and has lead to the development of new $S-$function identities and hitherto unknown properties of plethysms. Details will be given in a lecture at the 36th Lotharingian Seminar, Thurnau, Germany 19-22 March 1996. This lecture will appear in the LECTURES segment of these pages at about that time. A fuller paper is in preparation.