Racah & Paschen notation

The following two tables can be used to translate Paschen notation into Racah notation and vice versa.

Orbital	Block			
s	4s	5s	6s	7s
	1s	*2s*	*3s*	*4s*
p	4p	5p	6p	7p
	2p	*3p*	*4p*	*5p*
d	3d	4d	5d	6d
	3d	*4d*	*5d*	*6d*

Table 1.1. *The blocks in Racah notation (top row) and the corresponding blocks in Paschen notation (bottom row). Note that the four primed d levels in Racah notation are denoted as s in Paschen notation.*

Orbital	Levels					
s	$[3/2]_2$	$[3/2]_1$	$'[1/2]_0$	$'[1/2]_1$		
	s_5	s_4	s_3	s_2		
p	$[1/2]_1$	$[5/2]_3$	$[5/2]_2$	$[3/2]_1$	$[3/2]_2$	
	p_{10}	p_9	p_8	p_7	p_6	
	$[1/2]_0$	$'[3/2]_1$	$'[3/2]_2$	$'[1/2]_1$	$'[1/2]_0$	
	p_5	p_4	p_3	p_2	p_1	
d	$[1/2]_0$	$[1/2]_1$	$[7/2]_4$	$[7/2]_3$	$[3/2]_2$	$[3/2]_1$
	d_6	d_5	d'_4	d_4	d_3	d_2
	$[5/2]_2$	$[5/2]_3$	$'[5/2]_2$	$'[5/2]_3$	$'[3/2]_2$	$'[3/2]_1$
	d''_1	d'_1	s''''_1	s'''_1	s''_1	s'_1
f	$[7/2]_{3,4}$	$[9/2]_{4,5}$	$'[7/2]_{3,4}$	$[3/2]_{1,2}$	$[5/2]_{2,3}$	$'[5/2]_{2,3}$
	U	V	W	X	Y	Z

Table 1.2. *The orbitals (Racah notation) and the levels they contain. The top line shows the Racah notation and the bottom line the corresponding Paschen notation (in italics). The prime in the Racah notation denotes the configuration of the core:* $P_{3/2}$ *for unprimed,* $P_{1/2}$ *for primed.*