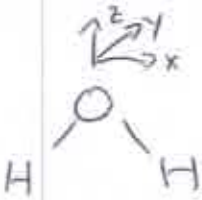
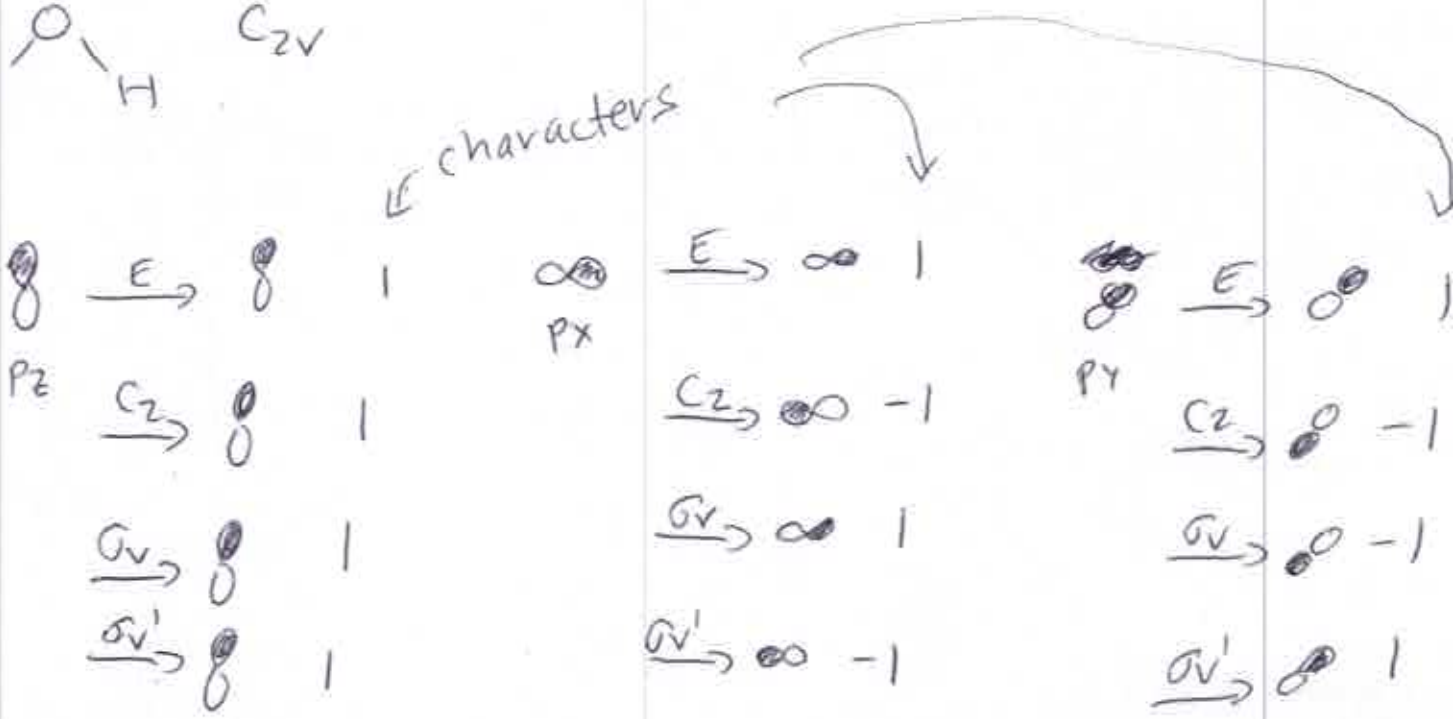


C_{2v}



A, B, E, T

most important
↳ take away for Mulliken symbols

Irreducible representation:

each row in a character table

Ex: C_{2v}

A_1 1 1 1 1 ← A_1 irreducible representation

$1(1)^2 + 1(1)^2 + 1(1)^2 + 1(1)^2 = 4$ ← order of point group

Ex: C_{3v}

C_{3v}	E	$2C_3$	$3\sigma_v$
E	2	-1	0

$1(2)^2 + 2(-1)^2 + 3(0)^2 = 6$ = order of C_{3v}

Matching functions

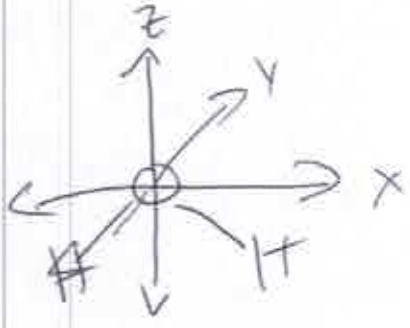
- x, y, z
- R_x, R_y, R_z

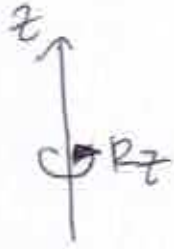
- functions that correspond to d orbitals (quadratic functions)

x, y, z → relate these to the p orbitals

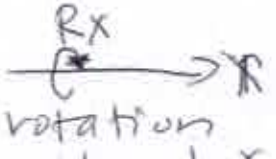
→ translational motion in x, y, or z direction

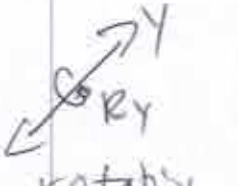
→ (x, y, z axes)



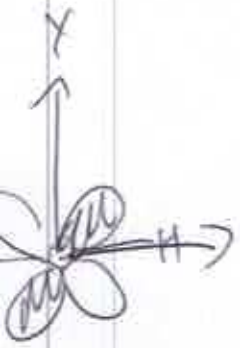


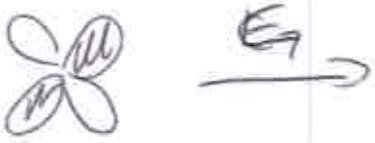
rotation about z





d_{xy} orbital of Oxygen





$E \rightarrow$ 1

$C_2 \rightarrow$ 1

C_2 axis pointing out of page

$\sigma v \rightarrow$ −1

$\sigma v' \rightarrow$ −1

Multiple operations in one class

C_{5v}	E	$2C_5$	$2C_5^2$	$5\sigma_v$
	#	#		

C_{5v} 4 classes of operations

5 differe
σ_{vs}

→ 2 operations in this class
C_5, C_5^3

→ 2 operations in this class
C_5^2, C_5^4

order (h) = 10