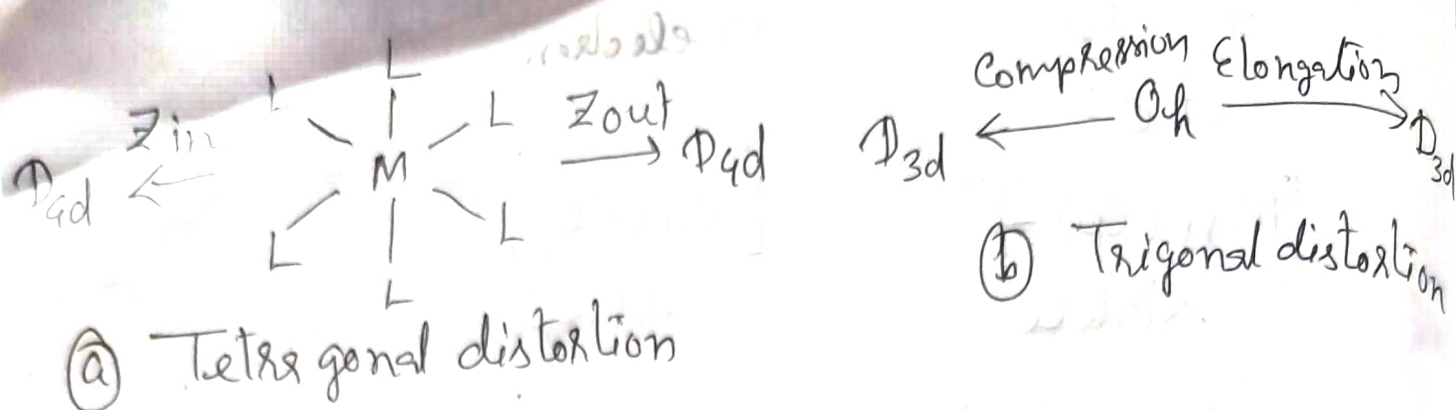


Tetragonal and Trigonal distortion



Isolobal fragments

Many of the reactions of metal carbonyl complexes parallel closely those of certain non metal elements and compounds. For example, the $Mn(CO)_5$ fragment has 17 valence electrons, one short of the total necessary to fulfill the 18-electron rule. It is analogous to the chlorine atom and the methyl free radical, each with seven valence electrons, one short of noble gas configuration. This concept is termed as electronically equivalent group or as isolobal fragments.

CH_4	CH_3	CH_2	CH	e
$Ni(CO)_4$	$Mn(CO)_5$	$Fe(CO)_4$	$Co(CO)_3$	$Fe(CO)_3$
$Fe(CO)_5$	$Co(CO)_4$	$Cr(CO)_5$	$Mn(CO)_4$	$Cr(CO)_4$
$Cr(CO)_6$	$Fe(CO)_2 Cp$	$Ni(CO)_3$	$Cr(CO)_2 Cp$	$Ni(CO)_2$
CH_3^-	H	$Co(CO)Cp$	$NiCp$	$CoCp$
	CH_2^-	S	P	CH^+
		CH^-	CH_2^+	
		CH_3^+		