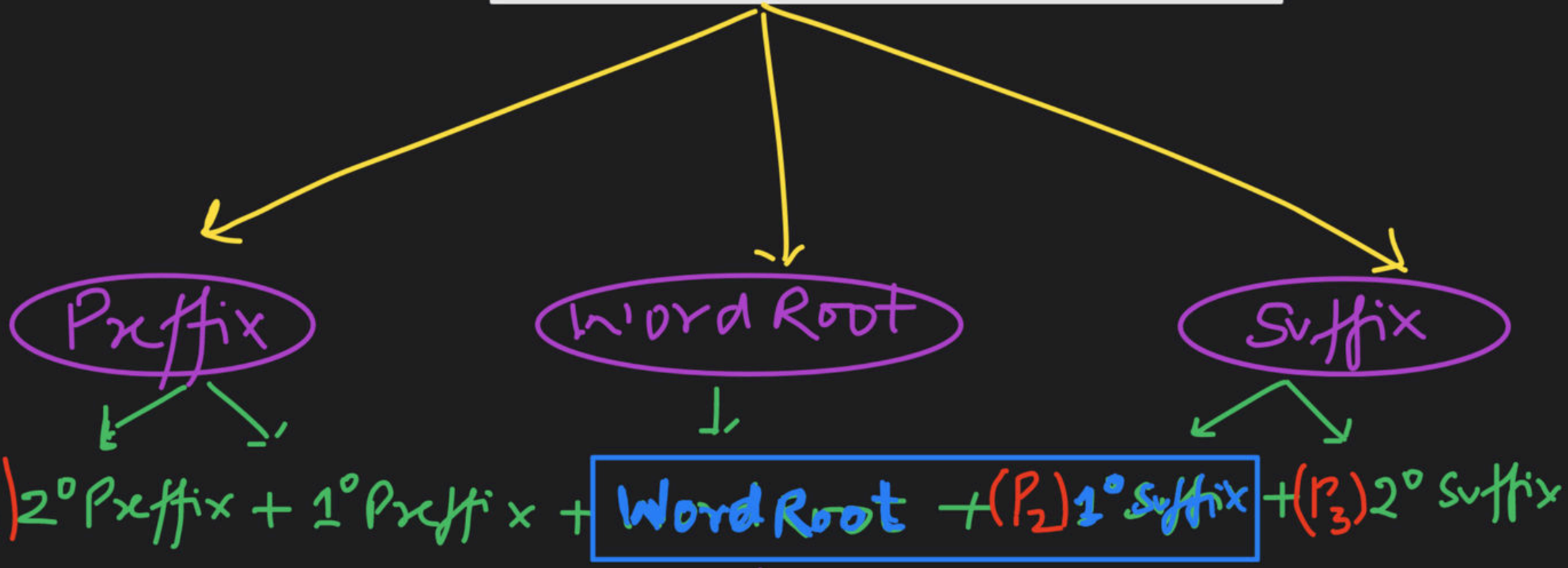
Rules for Selection of Longest Chain - I

Course on Nomenclature of Organic Compounds for Class XI

SURENDRA K MISHRA • Lesson 10 • July 6, 2021

Compound name ⟶ Derived name / Trivial name / Common name / IUPAC name

IUPAC Nomenclature



Prefix

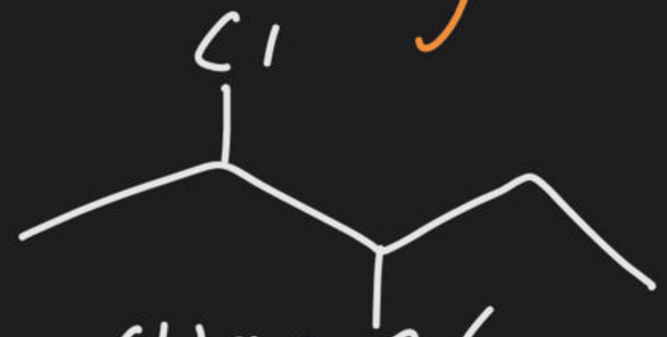
⇒ There are two type of Prefixes used for IUPAC naming of Organic Compound.

(i) **2° Prefix** It is used for naming of side chains or substituents:

—Cl	Chloro
—Br	Bromo
—I	Iodo
—F	Fluoro
—OR	Alkoxy (If R=CH_3 ⇒ methoxy)
—NH_2	Amino

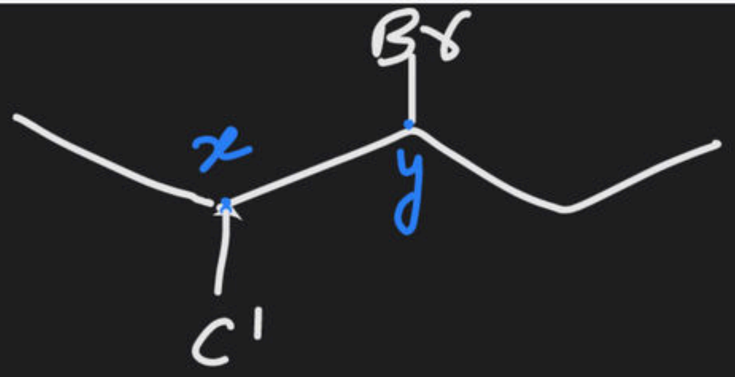
$-CH_3$	Methyl (Me)
$-CH_2-CH_3$	Ethyl (Et)
$-OH$	Hydroxy
$-NO_2$	Nitro

Note :- (i) 2° Prefixes are always written in alphabatical order



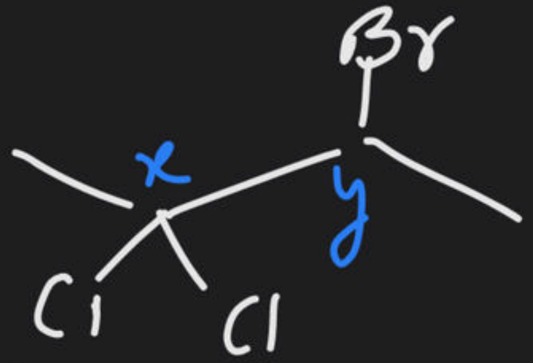
.... Bromo .... Chloro

(ii) 2° Prefixes are always written with their position.



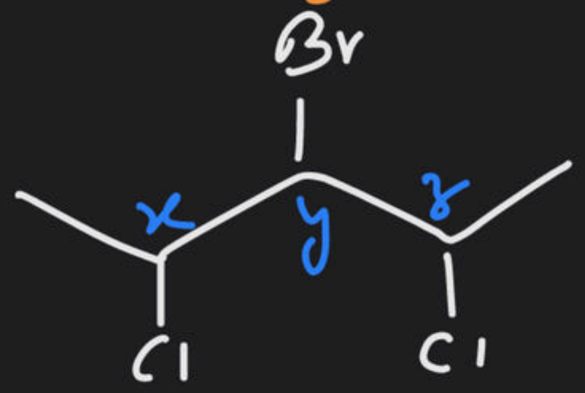
.. y- Bromo x- chloro - - - - ..

(iii) If same side chains are present Twice, Thrice ..... then use di, Tri, Tetra, Penta ------ just before Their names.



y- Bromo x,x- di chloro ---

or



y- Bromo x,z- dichloro - - - ..

(iv) If name of side chain/Substituents itself Contains di, tri, tetra ---- Then on repetion of such Side chains we can't used di, tri, tetra, penta for representing its frequency. we use

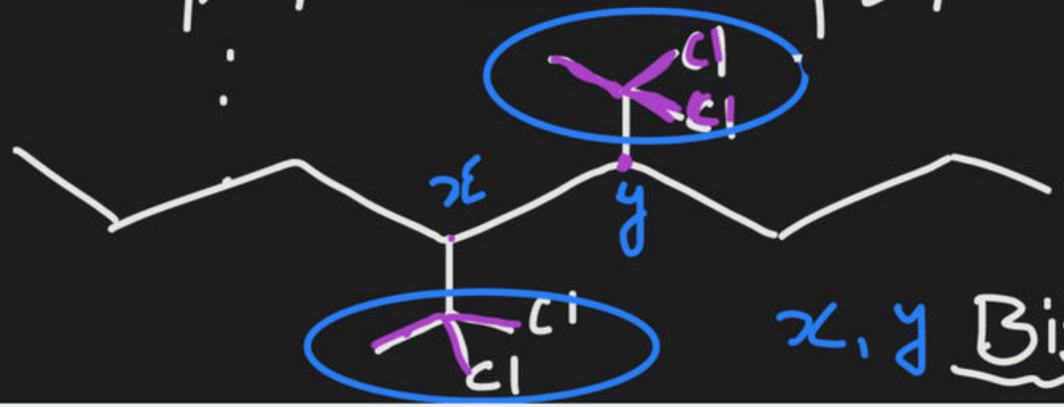
di ⟹ Bis

Tri ⟹ Tris

Tetra ⟹ Tetra Kis

penta ⟹ penta Kis

:



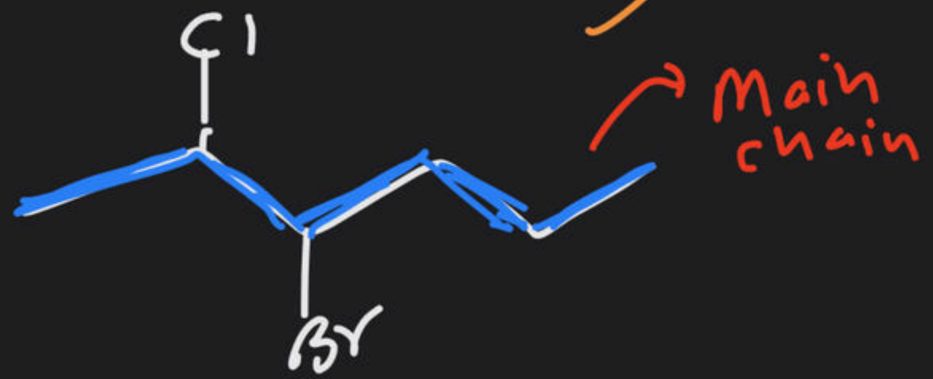
x, y Bis (di _ _ - - --)

(#) **1° Prefix**

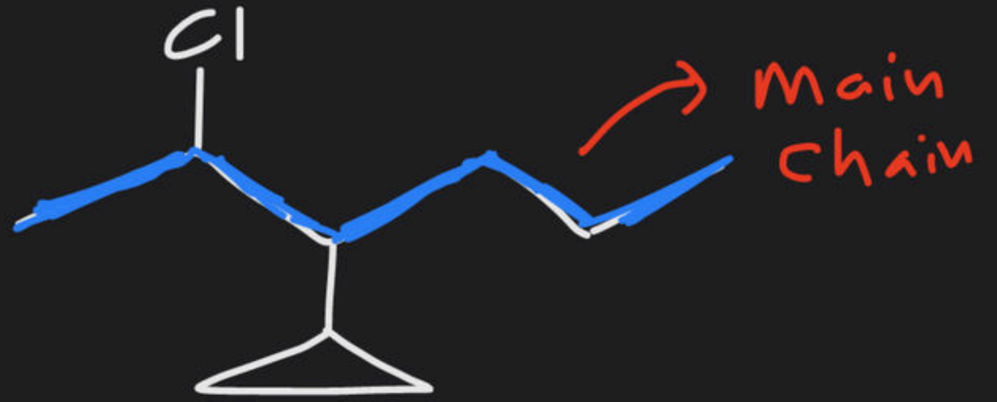
⇒ It is used for nature of main/principal chain

(a)

If main chain is acyclic ⇒ No 1° Prefix is used



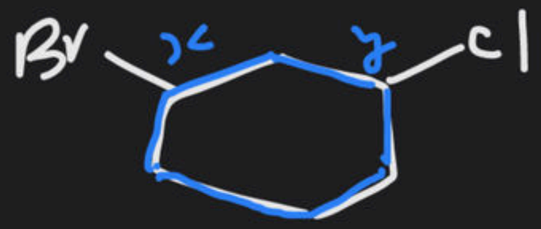
1° Prefix Not applicable



1° Prefix not applicable

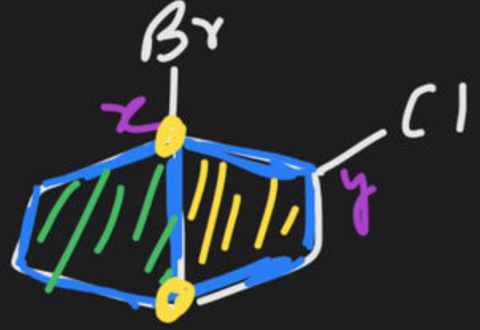
(b)

If main chain is cyclic ⇒ Cyclo



x-Bromo y-chloro Cyclo

If main chain is Bicyclic ⟹ Bicyclo



{ If Two rings Contain at least 2 atoms Common then that System is known as Bicyclic System

x-Bromo y-chloro Bicyclo

If main chain is Spiro ⟹ Spiro

{ If Two rings Contain Exactly 1 atom Common Then that System is known as Spiro system.


,  etc.

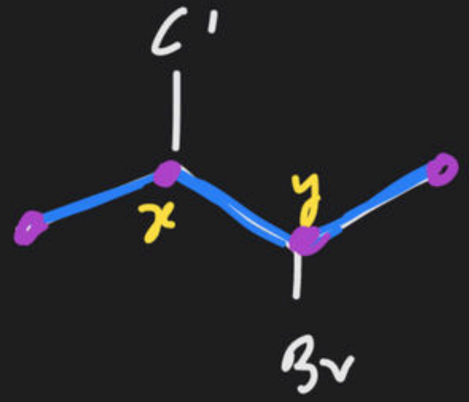
y-Bromo y-chloro spiro

(H) Word Root

⇒ It is used for naming of no. of Carbon atoms in Main / Principal chain

No. of Carbon in Principal chain	(Word Root)
1	Meth
2	Eth
3	Prop
4	But
5	Pent
6	Hex
7	Hept
8	Oct
9	Non

(a)

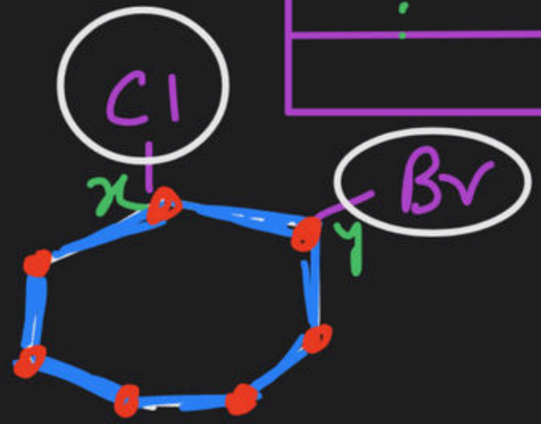


10	Dec
11	Undec
12	Dodec
13	Tridec
14	Tetradec

y-Bromo-x-chloro But

2° Prefix — W. Root

(b)



y-Bromo-x-chloro Cyclo Hept

2° Prefix — 1° Prefix — W. Root

Note If 1° suffix includes di, tri, tetra, Penta ---- etc then add adtional "a" in Word Root.

Prop ⟹ Propa

But ⟹ Buta

Pent ⟹ Penta

Hex ⟹ Hexa

Hept ⟹ Hepta

(#) 1° suffix

⇒ It is used for nature of Carbon-Carbon Bond in main/Principal chain

If all Single (C—C) ⇒ ane

If one double (C=C) ⇒ ene

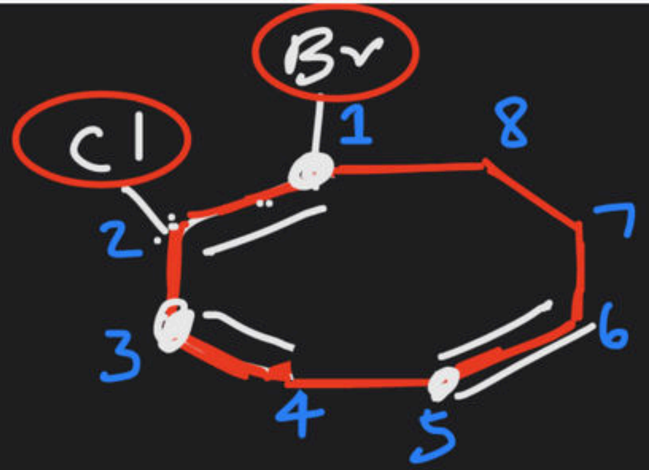
If one Triple (C≡C) ⇒ yne

If two double ⇒ diene

If two triple ⇒ diyne

Note (i) 1° Suffix always written in alphabatical orders

(ii) 1° Suffix (in case of C=C & C≡C) is always written with their position.



1-Bromo-2-chloro | Cyclo | Octa-1,3-diene-5-yne |

2° Prefix | 1° Prefix | W. Root | 1° Suffix

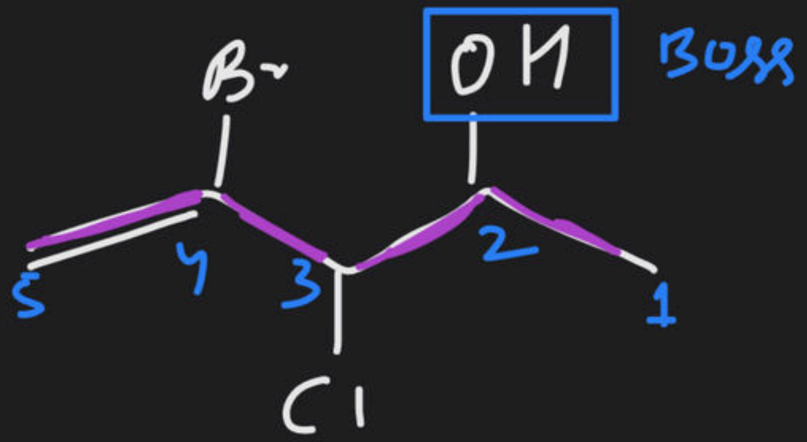
(#) 2° Suffix

⇒ It is used for naming of main / Principal / Boss Functional group.

Note :- (i) 2° Suffix is always written with

Their position. (Can be neglected for Carbon Containing Boss).

(ii) if name of 2° suffix starts from vowel (aeiou) then discard last "e" from 1° suffix



4-Bromo-3-chloropent-4-ene-2-ol