BrCHO

Br C H O

$T = 7 + 4 + 1 + 6 = 18$

Br C H O

who can mk th most bonds? C → goes in th middle

C $T = 18\bar{e}$ ~~∅~~, Br, H, O

use the next atom w/ most possible bonds: oxygen

C – O $T = 18 - 2 = 16$ ~~∅~~, Br, H, ∅

next atom has to be Br (cannot be H) & will connect to the central atom, that's exactly what makes it central

Br – C – O $T = 16 - 2 = 14$ ~~∅~~, Br, H, ∅

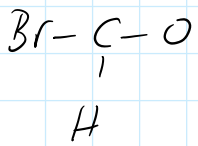
The algorithm suggests to attach the H to the O, this will not work b/c it will lead to an unfavorable arrangement:

namely =O–H is not a good FC. arrangement b/c FC(O) = 6 – 2 – 2 = +1

when the FC-s are unfavorable, it is often the case that better arrangements exist.

for this reason:
follow th algorithm to connect the H to the central atom as well:

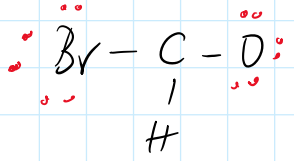
Br – C – O $T = 14 - 2 = 12\bar{e}$ ~~∅~~, Br, H, ∅
|
H
no more atoms



$T = 14 - 2 = 12\,\bar{e}$

C, Br, H, O
no more atoms

give $\bar{e}$-s to the terminal atoms, each can support $6\,\bar{e}$ more & thus form an octet



$T = 12 - 2\times 6 = 0$
no more e^-s

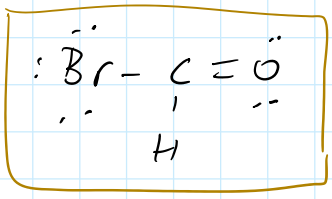
— " —

C does not have an octet, it's missing $2\bar{e}$. Take the atom that can make the most bonds after C, i.e. oxygen.

Share 2 more $\bar{e}$ btwn O & C so C can have an octet.

NOTES: sharing $2\bar{e}$ w/C does not remove the # of $\bar{e}$s from O. It continues to have an octet. It is only C that receives something new.

now C has an octet, & so does everyone else.



FC

$FC(C) = 4 - 4 = 0$ ✓ perfect

$FC(O) = 6 - 2 - 4 = 0$ ✓ perfect

$FC(Br) = 7 - 1 - 6 = 0$ ✓ perfect

Total FC = 0 + 0 + 0 = 0 = the original formula was

Total FC = 0 + 0 + 0 = ∅ ← the original formula was indeed neutral so this is a match.

The dot version of Lewis