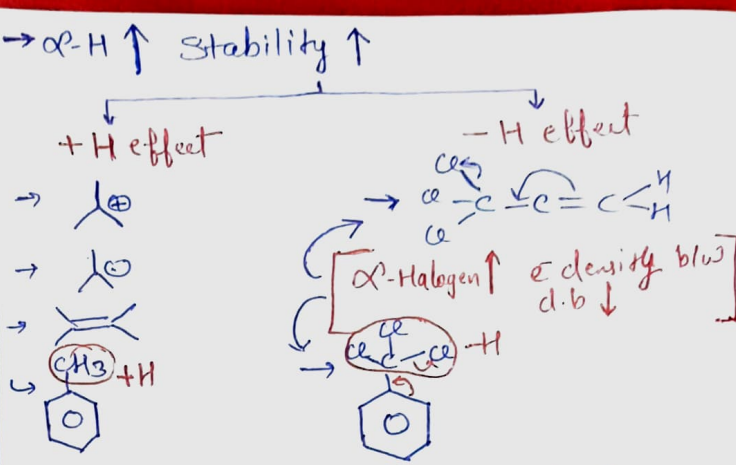


* Stability → Aromatic > Non-Aro. > Anti-Aro.
Dia ↓ Dia ↓
- Para
- Unstable
- forms dimer.

* **Annulene** → [] Annulene
No. of πe^- s
($4n+2$) πe^- annulene are Aromatic
($4n$) πe^- annulene are Anti-aromatic.
Except → [8] Annulene
Non-Aro.

* **Hyperconjugation** → Complete transfer of C-H σ bond.
→ AKA σ -p conjugation.

→ Possible in $\oplus/\ominus/=/\equiv/-\text{C}_6\text{H}_5$ system.
Conditions- at least 1 α -H at α -C w.r.t (sp^3)
 $\oplus/\ominus/=/\equiv/-\text{C}_6\text{H}_5$



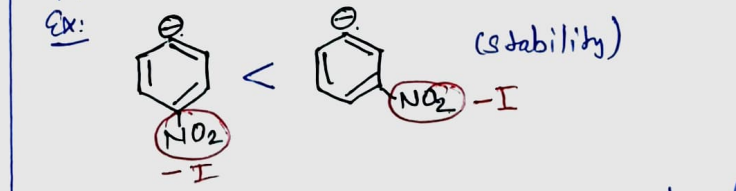
* $+M, +H, \text{Halogen } (-I)$ → Ortho & Para directing
 $-M, -H \text{ gp.}$ → Meta directing

* **Applications of H effect**

- Stability of alkene $\propto$ No. of α -H
• cis < Trans.
- Heat of Hydrogenation
(i) $\text{HOC} \propto \text{No. of } \pi \text{ bonds}$
(ii) $\text{HOC} \propto \frac{1}{\text{Stability}}$
- Heat of Combustion
(i) $\text{HOC} \propto \text{No. of } 'C'$
(ii) $\text{HOC} \propto \frac{1}{\text{Stability}}$

* H & M → Ortho & Para pe hi lgte hai.
I → O, P & M deupe lgta hai.
(Stability dekhte hue priority order use karenge i.e. $M > H > I$)

* Only I effect → jab benzene ke just upar $\oplus/\ominus/\ominus$ ho



* **Back bonding**: Jab ek ke pass l.p & bagal wale ke par vacant orbital ho to B.B hogi.

