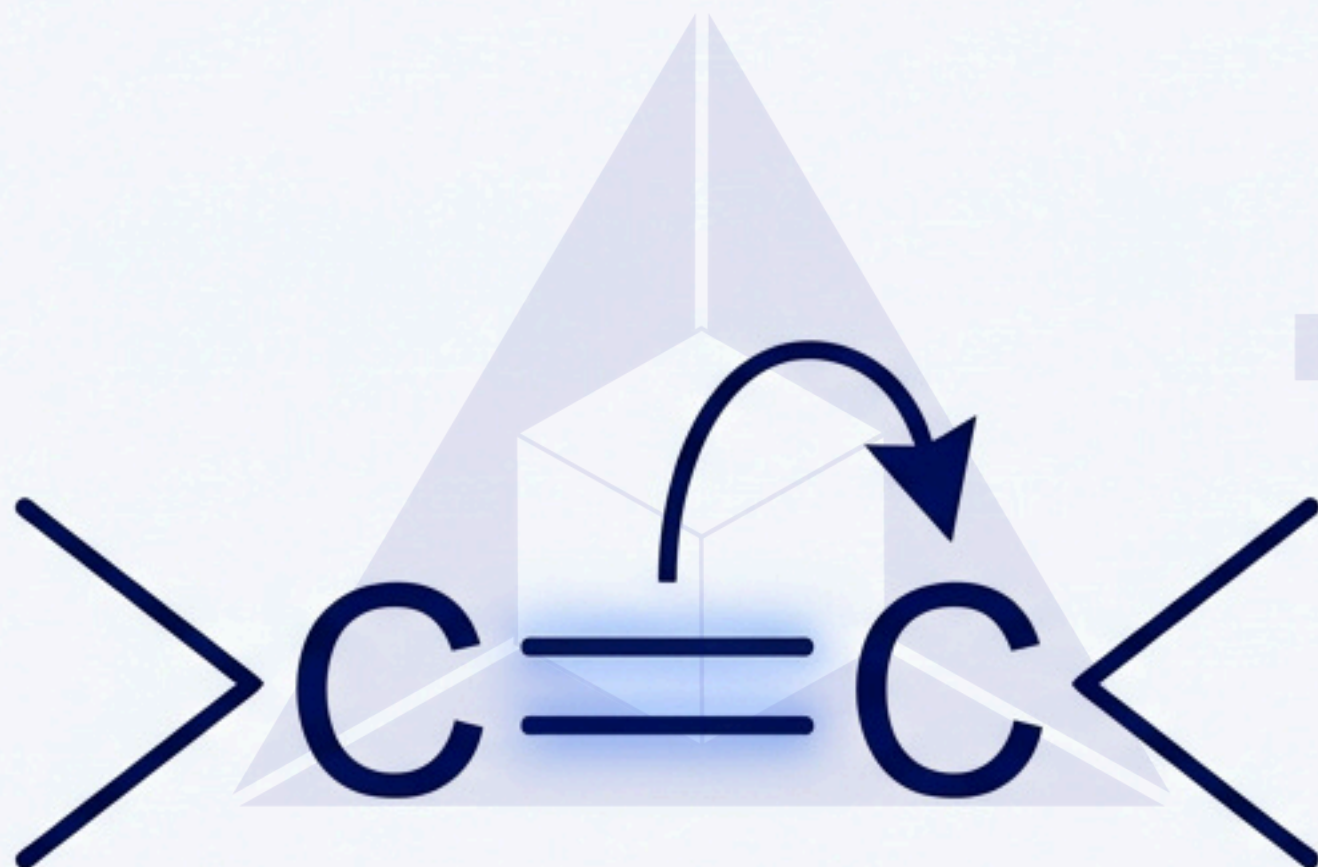


The Electromeric Effect (E Effect)

A temporary polarization in multiple bonds.



Requirement:

Operates strictly in organic compounds containing a multiple bond (double or triple).

Mechanism:

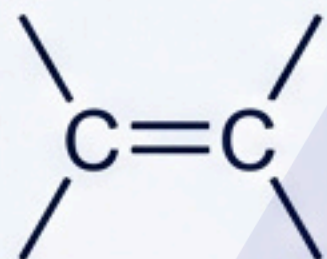
Involves the complete transfer of a shared pair of pi-electrons to one of the atoms joined by the multiple bond.

Nature:

It is a strictly temporary effect.

The Reagent Trigger

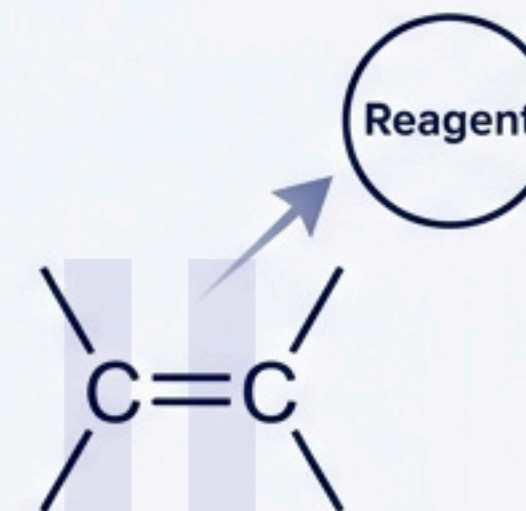
The E effect only exists on demand.



Isolated Molecule ->
No polarization occurs.



Attacking Reagent Approaches ->
Complete transfer of pi-electrons occurs instantly.

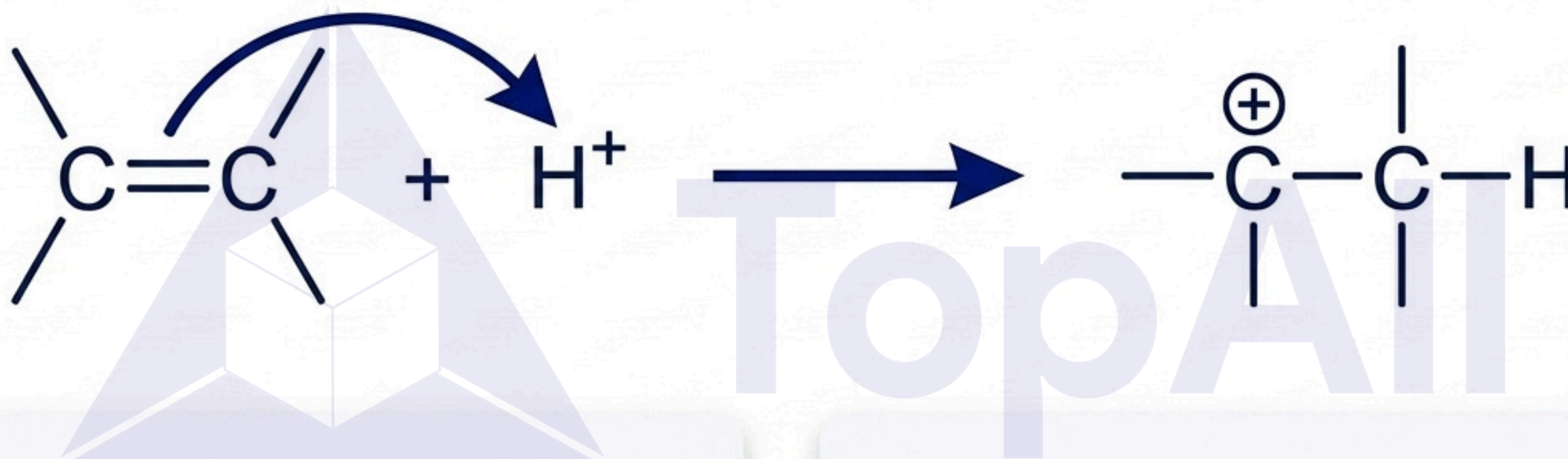


Reagent Removed ->
Effect is **annulled**;
molecule reverts to its
original unpolarized
condition.

Positive Electromeric Effect (+E Effect)



Electrons move towards the attacker.



The Rule

The pi-electrons of the multiple bond are transferred to the atom to which the attacking reagent gets attached.

The Example

Addition of acids (H+) to alkenes. The electrons flow toward the carbon bonding with the proton.



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$$E=mc^2$$



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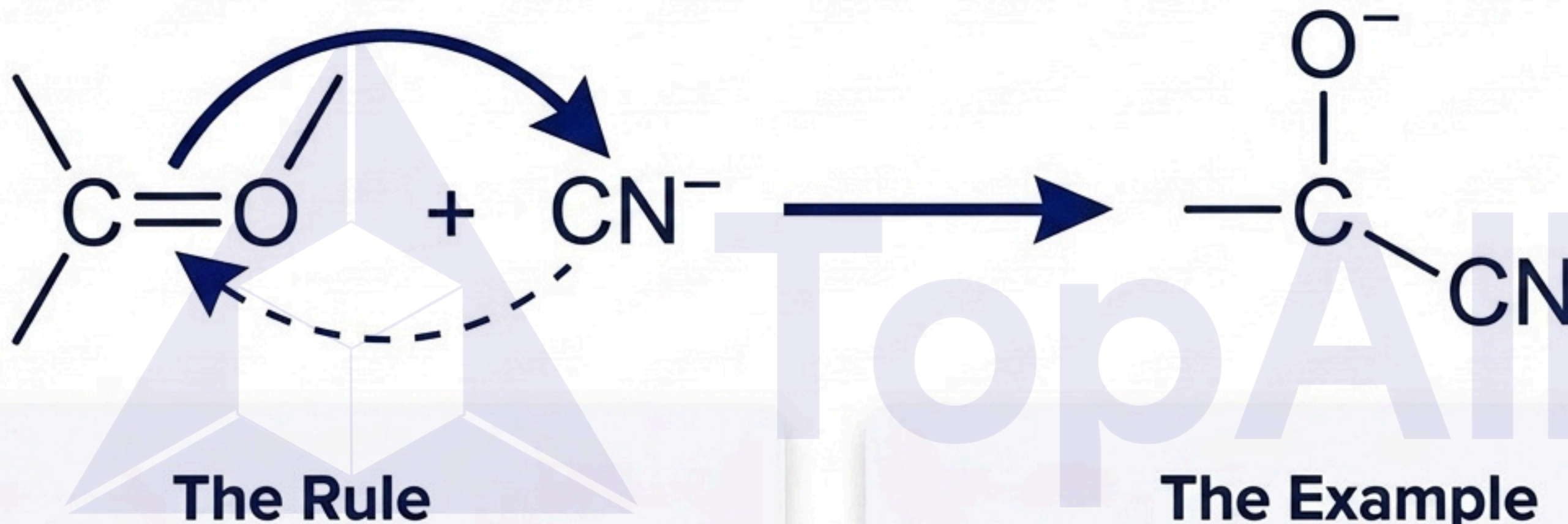
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Negative Electromeric Effect (–E Effect)

Electrons move away from the attacker.



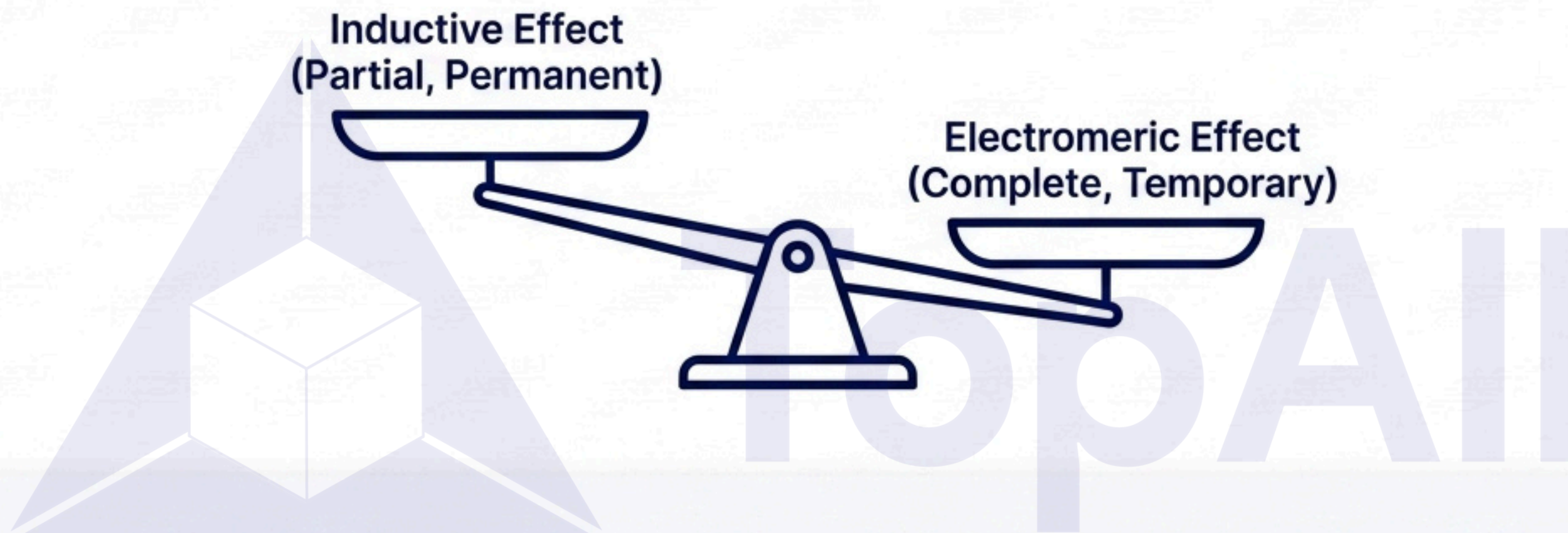
The pi-electrons of the multiple bond are transferred to the atom to which the attacking reagent does not get attached.

The Example

Addition of cyanide ion (CN⁻) to a carbonyl group. The electrons move to the highly electronegative oxygen, while CN⁻ attaches to carbon.

Effect Predominance

What happens when molecular effects clash?



When inductive and electromeric effects operate in opposite directions, the electromeric effect predominates.

Why? The E effect involves the complete transfer of easily polarizable pi-electrons, which overpowers the mere partial shift of sigma-electrons seen in the Inductive effect.

Revision Frame: The Electromeric Effect



Screenshot this for your final review.

Feature	+E Effect	-E Effect
Electron Flow	...TO the attacking reagent.	...AWAY from the attacking reagent.
Attacking Reagent	Electrophiles (e.g., H^+)	Nucleophiles (e.g., CN^-)
Example Substrate	Alkenes ($>C=C<$)	Carbonyls ($>C=O$)

Key Rule: The E effect is strictly temporary. It requires an attacking reagent and always overrides the Inductive effect if they oppose each other.



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