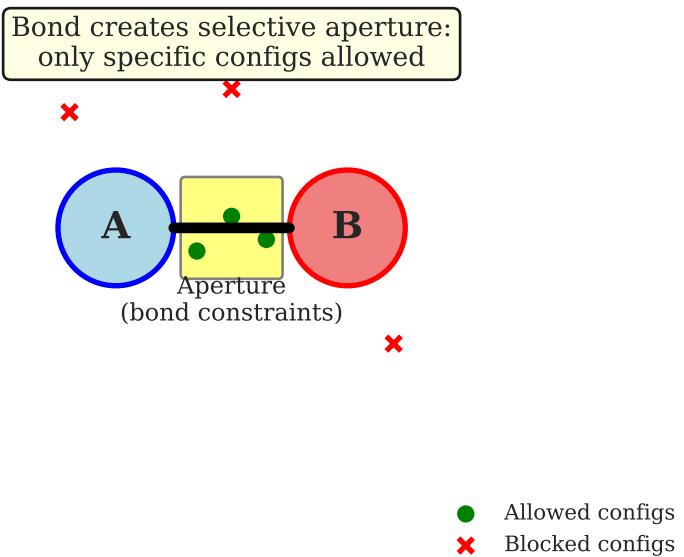


## Panel F-C: Molecular Bonds as Categorical Apertures

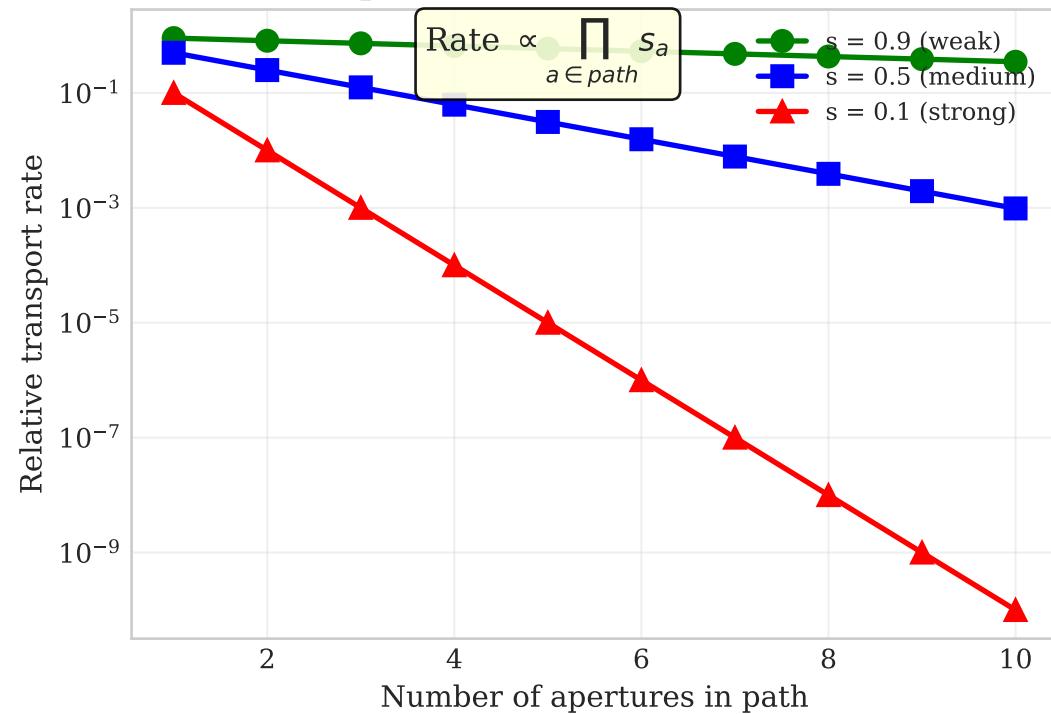
### (A) Chemical Bond as Categorical Aperture



### (B) Aperture Selectivity by Interaction Type

Interaction Type	Selectivity ( $s$ )	Potential ( $\Phi/kT$ )	Energy (kJ/mol)
Covalent Bond	$\sim 10^{-4}$	$\sim 9.2$	200-400
Ionic Bond	$\sim 10^{-3}$	$\sim 6.9$	100-300
Hydrogen Bond	$\sim 0.1$	$\sim 2.3$	10-40
Dipole-Dipole	$\sim 0.3$	$\sim 1.2$	5-25
Van der Waals	$\sim 0.5$	$\sim 0.7$	0.5-5

### (C) Transport Rate = Product of Selectivities



### (D) Phase Transitions: Aperture Reconfiguration

