Combinatorial $\longleftrightarrow$ Geometric

<u>Theorem</u>: Let X be the geometric realization of a semi cubical complex. (locally finite)

$$\gamma : \vec{I} \longrightarrow X \qquad \begin{array}{l}\gamma(0) = v_0 \in X_0 \\ \gamma(1) = v_1 \in X_0\end{array}$$

Then γ is dihomotopic to a combinatorial dipath (a dipath in $X_0 \cup X_1$)

<u>Theorem:</u> Let X be the geometric realization of a geometric semi cubical cx. Then

$$\gamma_i : \vec{I} \to X \quad \gamma_i(0) = v_0 , \gamma_i(1) = v_1 \quad i \in \{1,2\}$$

- γ_1 is d-equiv to $\gamma_2 \Longleftrightarrow \gamma_1$ is dihomotopic to γ_2 ($\gamma_1 \vec{\simeq} \gamma_2$)
- If γ_1 and γ_2 are combinatorial, then

$$\gamma_1 \vec{\simeq} \gamma_2 \Longleftrightarrow \gamma_1 \text{ is comb. equiv to } \gamma_2$$