

Definition: A semi-cubical complex, M , is a sequence of sets and maps

$$\Rightarrow M_n \Rightarrow M_{n-1} \Rightarrow \dots \Rightarrow M_1 \Rightarrow M_0$$

each arrow \Rightarrow represents $2n$ face maps

satisfying $\partial_i^k : M_n \rightarrow M_{n-1}, i \in \{1, \dots, n\}, k \in \{0, 1\}$

$$\partial_i^k \partial_j^l = \partial_{j-1}^l \partial_i^k \quad (i < j)$$

A geometric semi-cubical cx. has the following property:

For each pair of "cubes"

there is a $L_n \in M_n, K_m \in M_m$

unique maximal common face $F_k \in M_k$ s.t.

$$\partial L_n \cap \partial K_m = \partial F_k$$

set of iterated faces.

