Background idea: understand differential topology through (e.g. top.) of configuration space functors.

\[ L \times L \rightarrow L \times L \text{ but } \text{Conf}(L \times L) = \text{Conf}(L) \times \text{Conf}(L) \]

Koszul: Bott-Tukey

\[ f : S' \rightarrow R^n \text{ cont } \]

Conf. \( f \) encodes finite-top/quantum

\[ \text{first as } L : S^k \times S^l = \mathbb{R}^n \]

Conf. \( L : S^k \times S^l = \text{Conf}(R^n) \)

Dyck = Conf 1.

Watanabe: 8 Diff S' \times S' 

through conf. spa, regards.

Godwilling "cutting" away handles, makes embedding questions to such for disjoint unions of balls.

Cubical diagrams & Blakers-Massey

\[ f : X \rightarrow Y \]

\[ (b) \text{ ch } f = Y \cup (X \times \mathbb{R}^2) / \sim_{X \times 1 - X \times 1} \]

\[ \text{ch} \rightarrow H_n(X) \rightarrow H_n(Y) \rightarrow \cdots \]

\[ \text{LES} \rightarrow H_n(X) \rightarrow H_n(f) \rightarrow H_n(Y) \rightarrow \cdots \]

Def: We say \( f : X \rightarrow Y \) is \( k \)-connected if \( \text{ch} f \)

is \( (k-1) \text{st} \text{th} ) \text{ spc. } \).

Cubical diagrams:

\[ \varepsilon = 0, 1, \ldots, 3 \]

\[ \varepsilon = \text{top. } \]

\[ 2^x \text{ objects } 2^y = \text{ morphisms } 2^3 \text{ squares. } \]

Def: Total cub. of \( n \)-cub. diagram is cub. of induced

map of \( n \)-cub. which \( u \)-cube yields.

\[ X \rightarrow X \rightarrow C \]

\[ X \rightarrow C \]

\[ X \rightarrow X \rightarrow C \]

Total ch. = ch. union = \( X \times X \times C \uplus X \times X \times C \uplus X \times X \times C \)

Def: A square in \( C \)-Cartesian if total of \( X \).

\[ \Rightarrow \text{ M-V sequence in } H. \]

\[ \text{A square is } k \text{-cartesian of total if } k \text{-core. } \]

\[ (M-V \text{ inv. a range}) \]

Def: Total fiber is ...

\[ \text{fibers of fiber. } \]

\[ \text{M-V say in } H. \]