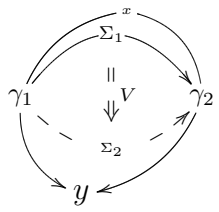

Figure 1: **A ("globular") 3-morphism** in an ω-category. The 3-morphism $V : \Sigma_1 \Rightarrow \Sigma_2$ goes between the 2-morphisms $\Sigma_1, \Sigma_2 : \gamma_1 \to \gamma_2$ which in turn have as source the object x and as target the object y.

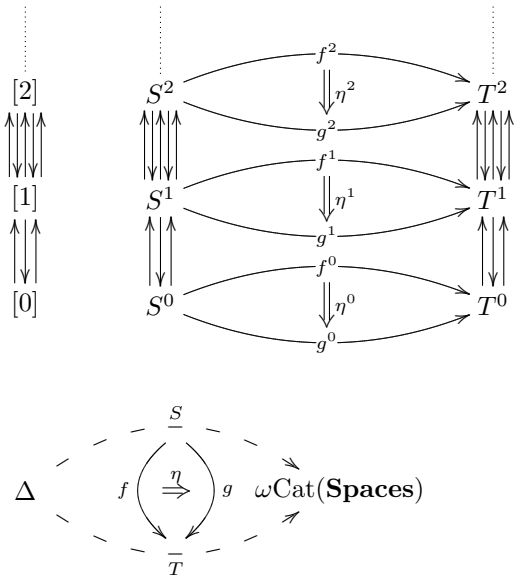

Figure 2: **Higher morphisms between cosimplicial ω-categories**. Here $S, T : \Delta \to \omega\mathrm{Cat}(\mathbf{Spaces})$ are two cosimplicial ω-categories internal to **Spaces**, $f, g : S \to T$ are two 1-morphisms between them and $\eta : f \Rightarrow G$ a 2-morphism betwen these. The upper diagram shows the component ω-functors and their naturality condition. All parallel diagrams on the right strictly commute.

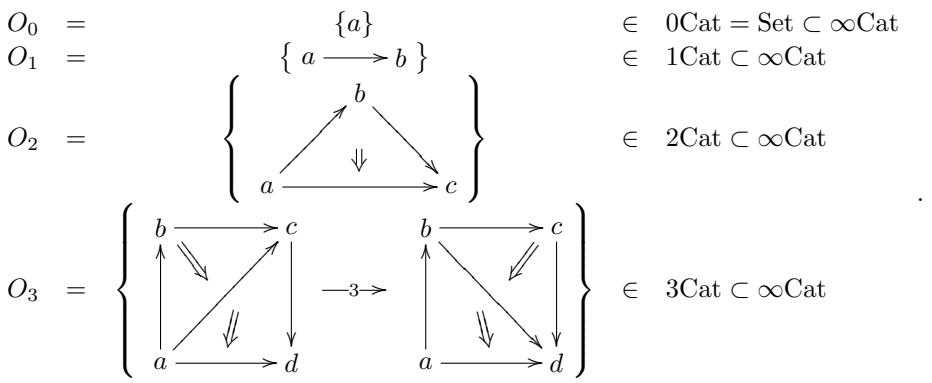

Figure 3: **Orientals.** The n-th oriental $O_n \in n\mathrm{Cat} \subset \omega\mathrm{Cat}$ is the free n-category on a single n-simplex. The first 4 orientals are shown explicitly. Here O_3 is to be thought of as a tetrahedron, filled by the 3-morphism $\xrightarrow{3}$, which we have depicted after slicing it open.

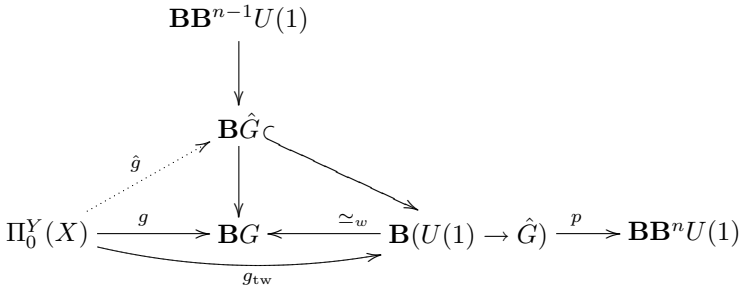

Figure 4: **Obstruction theory** for lifts of nonabelian cocycles through shifted central extensions $\mathbf{B}^{n-1}U(1) \to \hat{G} \to G$. The lift $\hat{g}$ of the G-cocycle g is obstructed by the $\mathbf{B}^n U(1)$-cocycle $p \circ g_{\mathrm{tw}}$, where g_{tw} is a *twisted* $\hat{G}$-cocycle, namely a $\hat{G}//\mathbf{B}^{n-1}U(1)$-cocycle a lift to which always exists for sufficiently fine cover Y.

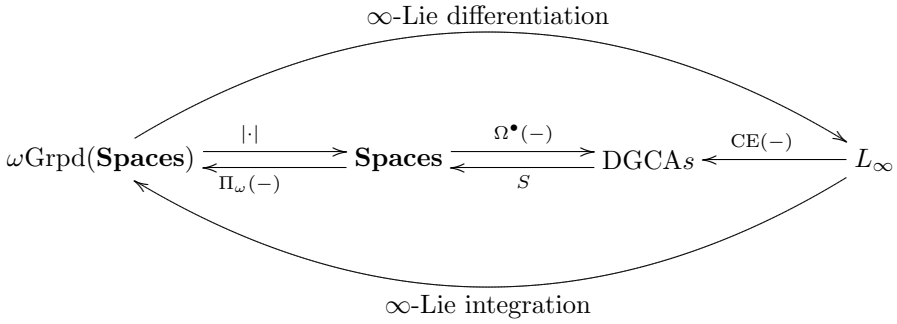

Figure 5: The basic structure of ∞-Lie theory as conceived here.

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