11/30.

$X \in \mathrm{qcat}.$

We have ... $\pi_0 \underbrace{\mathrm{map}_X}_{\text{mapping sp. of qcat.}}(x,y) \cong \mathrm{Hom}_{hX}(x,y)$

1/2 2.

Want $\mathrm{Hom}_{ho\mathfrak{C}X}(x,y) = \pi_0 \underbrace{\mathfrak{C}X(x,y)_\bullet}_{\text{the Kan cpx } \mathfrak{C}X(x,y)}$

Should have ... $\forall x,y \in X$ $\mathrm{Map}_X(x,y) \overset{?}{\simeq} \mathfrak{C}X(x,y)_\bullet$

$$\begin{tikzcd} \mathrm{Map}_X(x,y) \arrow[d] \arrow[r] & X^{\Delta^1} = \mathrm{Fun}(\Delta^1, X) \arrow[d, "(s,t)"] \\ \Delta^0 \arrow[r, "(x,y)"] & X \times X \end{tikzcd}$$

$$\begin{tikzcd} \mathfrak{C}X(x,y)_\bullet \arrow[d] \arrow[r, "\alpha"] & X^{\Delta^1} \arrow[d, "(s,t)"] \\ \Delta^0 \arrow[r, "(x,y)"] & X \times X \end{tikzcd}$$

If this is a pback. then

$\Delta^0 \xrightarrow{(x,y)} X \times X$

$$\mathrm{Hom}_{sSet}(S, \mathfrak{C}X(x,y)_\bullet) \overset{?}{\cong} \mathrm{Hom}(S, \Delta^0) \underset{\mathrm{Hom}(S, X\times X)}{\times} \mathrm{Hom}(S, X^{\Delta^1})$$

$$\overset{\wr\wr}{\Delta^0 \underset{X\times X}{\times} X^{\Delta^1}}$$

$\mathfrak{C}X(x,y)_\bullet \xrightarrow{\alpha} X^{\Delta^1}$

$\mathfrak{C}X(x,y)_0 = \{x \xrightarrow{f} y\}$

$f \longmapsto f$

$\mathfrak{C}X(x,y)_1 = \{x \underset{g}{\overset{f}{\Downarrow h}} y\}$ $\quad X^{\Delta^1}_1 = \mathrm{Hom}_{sSet}(\Delta^1 \times \Delta^1, X)$

$h \longmapsto \Delta^1 \times \Delta^1 \xrightarrow{\tilde{h}} X$

$$\begin{tikzcd} x \arrow[r, "f"] \arrow[d, equal] \arrow[dr, phantom, "\tilde{h}"] & y \arrow[d, equal] \\ x \arrow[r, "g"'] & y \end{tikzcd}$$

$\forall x,y \in X$

$\mathrm{Hom}_{hX}(x,y) \longleftrightarrow \mathrm{Hom}_{ho\mathfrak{C}X}(x,y)$

but to show $hX \cong ho\mathfrak{C}X$ as eq. of cats. you need this correspondence to be compatible w/ composing in each cat.

Maybe mentioned in [HTT, 2.2].
[HTT, 2.2.0.1].

Q:

§1. Homotopy theories.

1.1 model cats. — htpy cats.

1.2 ∞-cats.

1.2.1 · simp. cats.

↪ $sCat_{Bergner}$.

"function cpx."

1.2.2. quasicats. [Prop if $\mathcal{C} \in \infty$-cat $\Rightarrow \mathrm{Fun}(X, \mathcal{C})_\bullet$ is an ∞-cat $\forall X \in sSet$.]

↪ $sSet_{Joyal}$

~~1.3 Homotopy cats.~~

~~of model cats.~~

~~of sCats~~

~~of ~~ q-cats.~~

§2. Construction of the underlying ~~construction~~ ∞-cat.

2.1: L^H

2.2: $\mathbb{R}_B$.

2.3: N^{hc}

§3: facts of the underlying ∞-cat.

— or —

§2: The underlying

construction.
2.1. "
2.2 "
2.3 "
2.4: Facts about

— or —

§2 underlying

2.1 cons'

2.1.1 L^H

2.1.2 $\mathbb{R}$

2.1.3 N^{hc}

2.2 Facts'