

10/19 Twoples.

- 2-cats
- model structures in functor cats.

Bookkeeping: project ideas.

- $\infty$ -cats  $\rightarrow$  quasocats
  - "strict  $\infty$ -cats" /  $w$ -cats
  - Riehl-Verity "2-cat. theory of  $\infty$ -cats".
  - "2-quasicategories"  $\stackrel{?}{\sim}$   $(\infty, 2)$ -cats  $\stackrel{?}{\sim}$ .
- $n$ -cats  $\rightarrow$  comparing models?
  - $U$
  - 2-cats
  - enriched cats. (Kelly)

$\leadsto$  by next week's meeting (10/26) fix a topic & hopefully writing the project description (due 10/31)

Often ... "2-cats"  $\rightsquigarrow$  strict 2-cats  
 "bicats"  $\rightsquigarrow$  weak 2-cats

Some constructions one can define for (weak) 2-cats

- equivalences
- opposite cats
- functors  $\mathcal{C} \xrightarrow{F} \mathcal{D}$

a functor of 2-cats consists of ...

- (1) an assignment of objects
- (2) functors of hom-cats  $\forall x, y \in \mathcal{C}$

$$\left\{ F_{x,y} : \mathcal{C}(x,y) \longrightarrow \mathcal{D}(F_x, F_y) \right\}_{x,y \in \mathcal{C}}$$

that "plays well w/ composition" ...



