Pullback

meu

July 2, 2025

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In a category C a **pullback** of a **cospan** $X \xrightarrow{f} Z \xleftarrow{g} Y$ is given by a **span** $X \xleftarrow{p} P \xrightarrow{q} Y$ for which $f \circ p = g \circ q : P \to Z$ and such that, for any other span $X \xleftarrow{x} W \xrightarrow{y} Y$, there exists a unique $W \xrightarrow{\omega} P$ such that $p \circ \omega = \alpha$ and $q \circ \omega = \gamma$.

That is

`https://tikzcd.yichuanshen.de/#N4Igdg9gJgpgziAXAbVABwnAlgFyxMJZARgBpiBdUkANwEMAbAVxiR`

W [rrd, "y", bend left] [rdd, "x'", bend right] [rd, "ω", $dashed$]

$P[r, "q"][d, "p'"]Y[d, "g"]$

$X[r, "f"]Z$