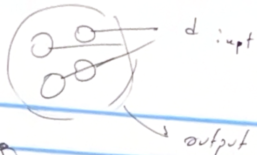
Composition

D d-input planar arc diagram



$T^0(k)$ (k) ended tangle diagrams or orientation string

$T(k) = T^0/$ Reidemeister.

D diagram defines: $T(k_1) \times \cdots \times T(k_d) \to T(k)$
by filling "input" holes
collection of sets $D(k)$ & ops D are "planar algebra"
Thm (B-N) $[\![\cdot]\!]$ commutes w/ all Ds.

$P(k)$ planar algebra.
$C(k)$ collection of categories w/ $ob(C(k)) = P(k)$
& $Mor(C(k))$ are planar algs
~~[illegible]~~
enriched over PlanAlg.

Ex: $Cob^4(B)$ ~~&~~ tangles w $\partial = B$
$Cob^4(k) = Cob^4(B)$ w/ $|B| = k$)
$Cob^4 = \bigcup_k Cob^4(k)$
over Planar Alg of tangles.
allows vertical & horizontal
stacking, composition · commutativity · Planar algebra.

Better categorical definition?
$\{C(k)\}$ categories ~~[illegible]~~
$\{Mor(C(k))\}$ a planar Alg : collection of products.
& each $ob(C(k))$ a Planar Alg which commutes

Canopolis

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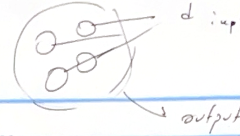

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