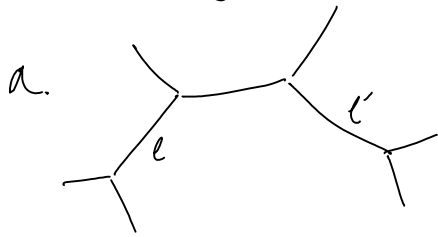


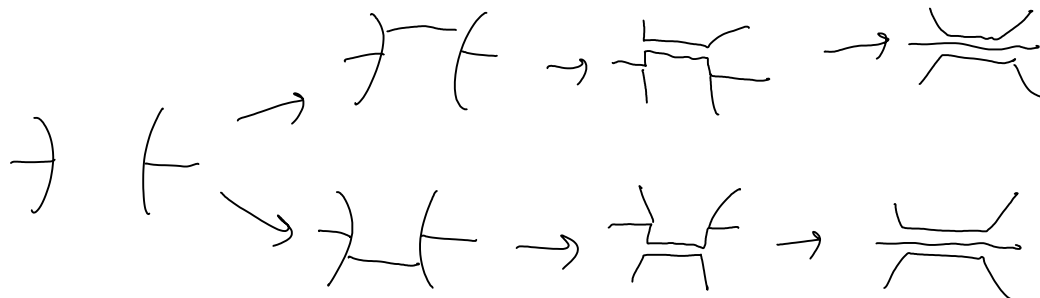
1. Locality:



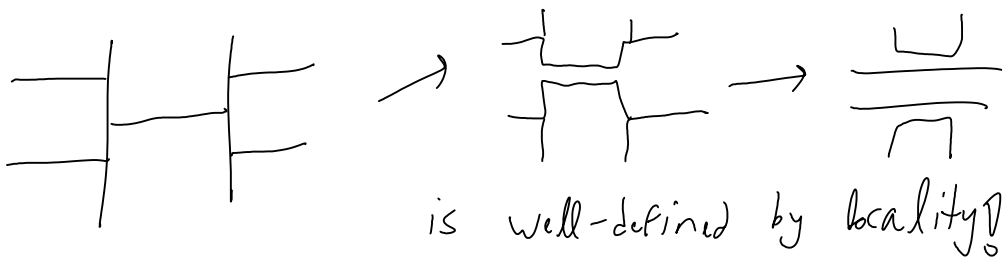
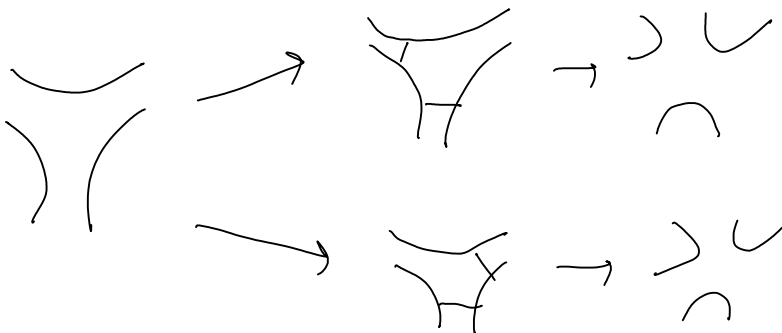
u_e and d_e commute with u_c and d_c and with connect-sum ops on e .

b. Connect sum ops commute.

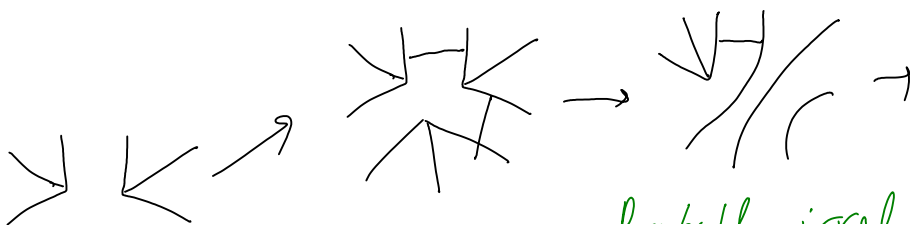
2. The "vertex-connect-sum" is well-defined:



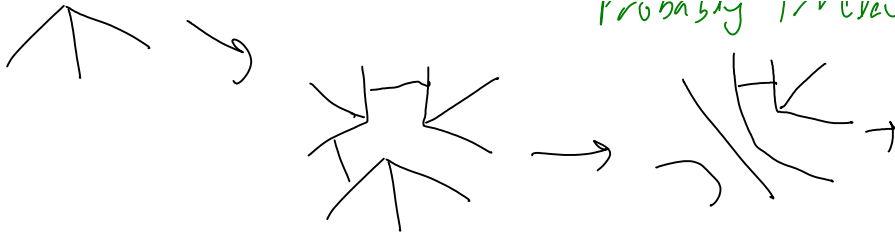
3. The "cyclic edge sum" is well-defined:



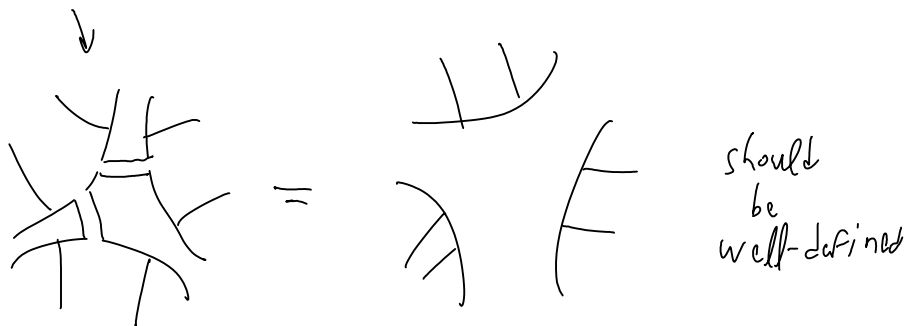
is well-defined by locality!



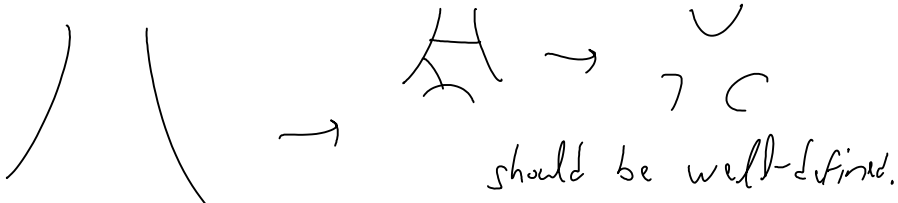
probably irrelevant.



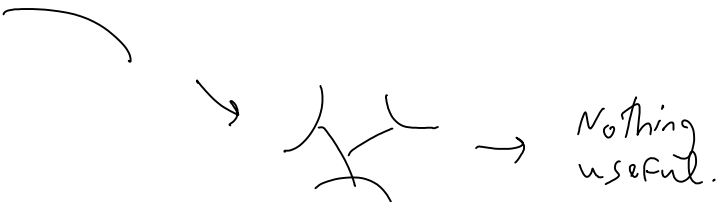
should be well-defined.



should be well-defined

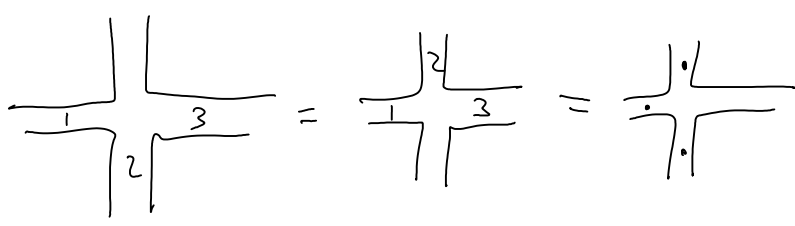


should be well-defined.



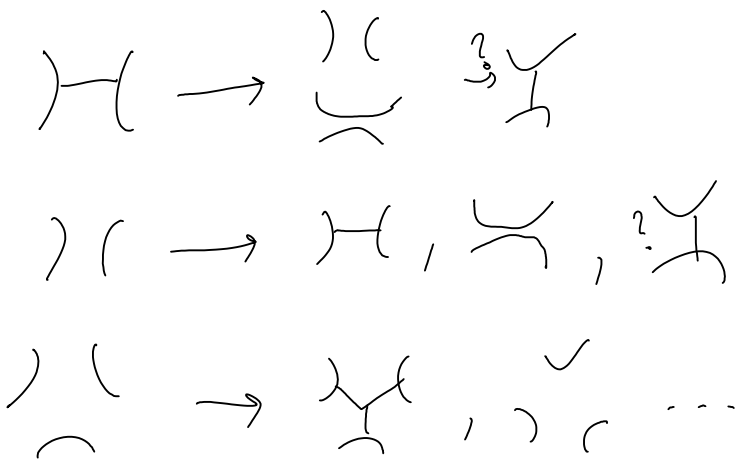
Nothing useful.

Is there a 4-step cyclic edge sum?

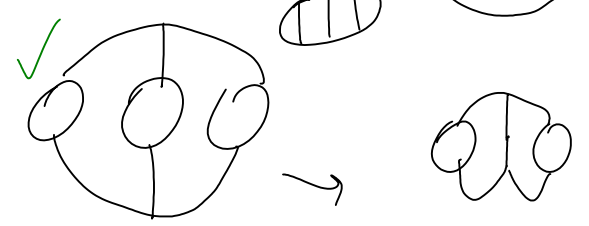
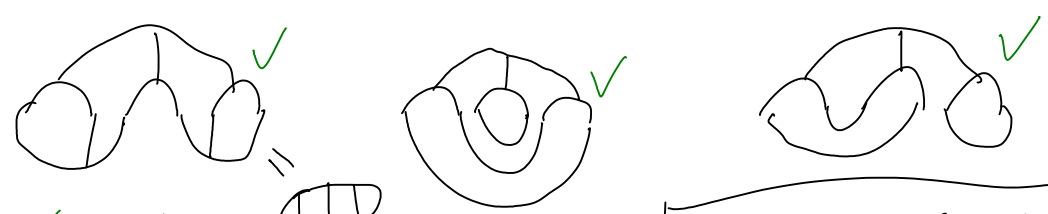
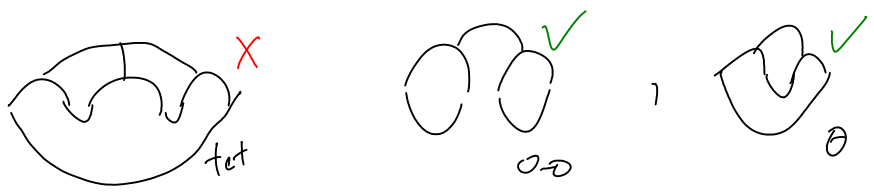
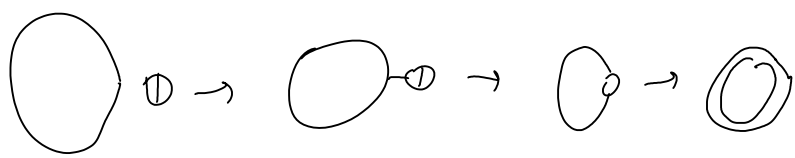


... seems to follow from the 3-step case.

Operations as tree-substitutions:



Question When is
 a tree-substitution
 TG-implementable?



Is TG-implementable
 $\Leftrightarrow T_1, T_0^*$ contains
 no tetrahedra?
 can this be better stated?