


Termination and Partial Correctness of `eliminate`


Theorem (Termination of `eliminate`)

Given $G = (V, E)$, after one elimination step, we obtain $G' = (V', E')$, such that $V' \subsetneq V$. 

Lemma (Soundness of `is_simplicialb`)

Given $G = (V, E)$, and node $u \in V$, if `is_simplicialb` is true, then $G \vdash u : \text{Simplicial}$. 

Lemma (Completeness of `is_simplicialb`)

Given $G = (V, E)$, and node $u \in V$, if $G \vdash u : \text{Simplicial}$, then `is_simplicialb` is true. 

Theorem (Partial Correctness of `eliminate`)

Given $G = (V, E)$ such that G has a PEO, if `eliminate_step` returns node u , then $G \vdash u : \text{Simplicial}$, otherwise $G = (\emptyset, \emptyset)$. 