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Lemma: Let $e \in E(T_{P,U})$. Then:

(i) If $e \in E(P^\circ)$, then $e \in E(T_{P,U'})$ for every $U' \subseteq U$ (if $T_{P,U'}$ exists).

(ii) P^u $U' \geq U$

Lemma: Let P be transient for U and $(u,v) \in E(P^\circ \cup P^u)$. Then:

(i) If $(u,v) \in E(P^u - P^\circ)$, then $(u,v) \in E(T_{P,U})$ iff $(\gamma(\lambda(u,P)),P) \in U$.

(ii) $P^\circ \cap P^u$ $(u,v) \in E(T_{P,U})$.

(iii) $P^\circ - P^u$ iff $\notin U$.

Lemma: Let (v,P) be a type-1 update and U such that ~~$(\gamma(\lambda(v,P)),P) \notin U$~~. Then:

~~(i)~~

Lemma: Let P be transient for U and (v,P) be a type-1 update such that $(\gamma(\lambda(v,P)),P) \notin U$. Then:

(i) P is transient for $U \cup \{(v,P)\}$ and $T_{P,U \cup \{(v,P)\}} = T_{P,U}$.

(ii) - $T_{P,U-\{(v,P)\}}$

Lemma: Let P be transient for U and (v,P) be a type-3 update such that $(\gamma(\lambda(v,P)),P) \in U$. Then:

(i) P is transient for $U \cup \{(v,P)\}$ and $T_{P,U \cup \{(v,P)\}} = T_{P,U}$.

(ii) - $T_{P,U-\{(v,P)\}}$