such that $V_i^\circ = G$ then $V_j^\circ \triangleleft G$ implies $V_j^\circ \in F_i$. Hence $V_j \in \bigcap_{i\in I} F_i = F$. But then $V_j^\circ \leqslant G_F < V$, which implies $M \leqslant V$ a contradiction. Thus there exist some $i \in I$ such that $V_i V \nleqslant G$.

(f) If $V_i V \nleqslant G$ then $V_i V \in \mathcal{Y}$. Here we utilize the fact that $\mathcal{Y}$ is a Fischer class. We have $V_i V/V_i \cong V/V_1 \cap V \in S_p$ the class of finite solvable p-groups. Also $V_i \triangleleft G$ implies $V_i \in \mathcal{Y}$ and $V_i \leqslant \mathrm{core}_G(V_1 V)$. Hence $V_i V/\mathrm{core}_G(V_i V) \in S_p \subsetneq N$ implies $V_i V \in \mathcal{Y}$.

Finally, since V is an F-injector of $V_i V$ and by the induction hypothesis, we have V normal in $V_i V$. But $V \in F_i$ and V_i is the F_i-injector of $V_i V$, so $V \leqslant V_i$ a contradiction of (b) and the theorem is proven.

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