Proposition 4: *If* $E \xrightarrow{p} X$ *is (principal) bundle equivalent to a pullback by* i *of a (principal) bundle over* X_G, *then the (principal) fibre bundle* $E_G \times E \xrightarrow{1 \times p} E_G \times X$ *admits a (principal bundle) lifting of the diagonal action of* G *on* $E_G \times X$.

Thus we get a lifting of G for the fibre bundle $E_G \times F \to E_G \times E \longrightarrow X$. If F is a topological group K and $K \to E \to X$ is a principal K bundle, then the lifted action of G on $E_G \times E$ will commute with the action of K on $E_G \times E$ given by $k \to (1 \times k: E_G \times E \to E_G \times E)$ where $k \in K$ is regarded as a homeomorphism of $E \to E$ arising from the principal action of K on E.

Now we state the Hattori-Yoshida theorem for coverings. This follows as a corollary to theorem 1.

Theorem 5: *Suppose that* $E \xrightarrow{p} X$ *is a fibre bundle with discrete fibres. Then* G *lifts if and only if* p *is a pullback by* i *of a fibration over* X_G.

Proof: We shall show that if the bundle $E \xrightarrow{p} X$ is homotopy equivalent to a bundle $E' \xrightarrow{p'} X$ where G lifts to an action on E', then G lifts to an action on E. Then theorem 1 will give us the result.