Lemma 7.3.8 *Let $\{U_j\}$ be an open covering of the manifold M.*

(a) *Let $P, Q \in \Psi^d(M)$ be such that $P_{U_j} - Q_{U_j} \in \Psi^{-\infty}(U_j)$ for all j. Then $P - Q \in \Psi^{-\infty}(M)$.*

(b) *Assume that for each j a pseudo-differential operator $P_j \in \Psi^d(U_j)$ is given. Assume furthermore that $(P_i)_{(U_i \cap U_j)} = (P_j)_{(U_i \cap U_j)}$ for all indices i, j with $U_i \cap U_j \neq \emptyset$. Then there exist a $P \in \Psi^d(M)$ such that $P_{U_j} - P_j \in \Psi^{-\infty}(U_j)$ for all j. The operator P is uniquely determined modulo $\Psi^{-\infty}(M)$.*