$$
\begin{array}{ccc}
\mathcal{L}_+^\uparrow & \xrightarrow{\quad P \quad} & \mathcal{L}_-^\uparrow \\
\downarrow{\scriptstyle T} & & \downarrow{\scriptstyle T} \\
\mathcal{L}_-^\downarrow & \xrightarrow{\quad P \quad} & \mathcal{L}_+^\downarrow
\end{array}
$$