

$$\begin{array}{ccccc}
X' & \xrightarrow{i_X} & X & \xrightarrow{p_X} & X' \\
\downarrow \text{Cofib} & & \downarrow \text{TCofib} & & \downarrow \text{Cofib} \\
a' & & a_{tc} & & a' \\
Y' & \xrightarrow{i_Y} & Y & \xrightarrow{p_Y} & Y' \\
& & \downarrow \text{TFib} & & \\
& & a_{tf} & &
\end{array}$$

Commutative diagram illustrating a relationship between two fibrations and their totalizations.

The top row shows the totalization of the top fibration: $X' \xrightarrow{i_X} X \xrightarrow{p_X} X'$.
 The bottom row shows the totalization of the bottom fibration: $Y' \xrightarrow{i_Y} Y \xrightarrow{p_Y} Y'$.

The vertical arrows represent the fibrations:
 - Left fibration: $X' \rightarrow Y'$ (labeled Cofib, with arrow a')
 - Right fibration: $X' \rightarrow Y'$ (labeled Cofib, with arrow a')
 - Middle fibration: $X \rightarrow Y$ (labeled TFib, with arrow a_{tf})
 - Totalization fibration: $X \rightarrow Y$ (labeled TCofib, with arrow a_{tc})

The diagram also includes a central square and two curved arrows:
 - A central square with vertices E (top-left), P (top-right), Y (bottom-left), and Y' (bottom-right).
 - A curved blue arrow s from Y' to E .
 - A curved blue arrow l from P to Y' .
 - A dashed red arrow k from E to P .
 - A dashed red arrow from X' to P labeled TCofib.