Crossover

Partiell zuordnendes Crossover (PMX):

$$
\begin{array}{lcl}
A & = & (\ 9\ \ 8\ \ 4\ \mid\ 5\ \ 6\ \ 7\ \mid\ 1\ \ 3\ \ 2\ \ 10\ ) \\
 & & \qquad\qquad\ \updownarrow\ \updownarrow\ \updownarrow \\
B & = & (\ 8\ \ \underbrace{7}_{10}\ \ 1\ \mid\ 2\ \ 3\ \ 10\ \mid\ 9\ \ \underbrace{5}_{2}\ \ 4\ \ \underbrace{6}_{3}\ ) \\
 & & \qquad\qquad\qquad\ \Downarrow \\
\hat{A} & = & (\ 9\ \ 8\ \ 4\ \mid\ 2\ \ 3\ \ 10\ \mid\ 1\ \ 6\ \ 5\ \ 7\ ) \\
\hat{B} & = & (\ 8\ \ 10\ \ 1\ \mid\ 5\ \ 6\ \ 7\ \mid\ 9\ \ 2\ \ 4\ \ 3\ )
\end{array}
$$

Erhält *absolute* Stadtpositionen.

Ordnungs-Crossover (OX):

$$
\begin{array}{lcl}
A & = & (\ 9\ \ 8\ \ 4\ \mid\ 5\ \ 6\ \ 7\ \mid\ 1\ \ \underline{3}\ \ \underline{2}\ \ \underline{10}\ ) \\
 & & \qquad\qquad\ \updownarrow\ \updownarrow\ \updownarrow \\
B & = & (\ 8\ \ \underline{7}\ \ 1\ \mid\ 2\ \ 3\ \ 10\ \mid\ 9\ \ \underline{5}\ \ 4\ \ \underline{6}\ ) \\
 & & \qquad\qquad\qquad\ \Downarrow \\
A' & = & (\ 9\ \ 8\ \ 4\ \mid\ 5\ \ 6\ \ 7\ \mid\ 1\ \leftarrow\ \leftarrow\ \leftarrow\ ) \\
B' & = & (\ 8\ \leftarrow\ 1\ \mid\ 2\ \ 3\ \ 10\ \mid\ 9\ \leftarrow\ 4\ \leftarrow\ ) \\
 & & \qquad\qquad\qquad\ \Downarrow \\
A'' & = & (\ 5\ \ 6\ \ 7\ \mid\ _\ \ _\ \ _\ \mid\ 1\ \ 9\ \ 8\ \ 4\ ) \\
B'' & = & (\ 2\ \ 3\ \ 10\ \mid\ _\ \ _\ \ _\ \mid\ 9\ \ 4\ \ 8\ \ 1\ ) \\
 & & \qquad\qquad\qquad\ \Downarrow \\
\hat{A} & = & (\ 5\ \ 6\ \ 7\ \mid\ 2\ \ 3\ \ 10\ \mid\ 1\ \ 9\ \ 8\ \ 4\ ) \\
\hat{B} & = & (\ 2\ \ 3\ \ 10\ \mid\ 5\ \ 6\ \ 7\ \mid\ 9\ \ 4\ \ 8\ \ 1\ )
\end{array}
$$

Erhält *relative* Stadtpositionen.