

## swap\_adjacent\_decomp<sup>4,23</sup>

$\forall A:\text{Type}, i:\mathbb{N}, L:A \text{ List}.$

$i+1 < \|L\|$

$\Rightarrow (\exists X, Y:A \text{ List}.$

$L = (X @ [L[i]; L[i+1]] @ Y) \ \& \ \text{swap}(L;i;i+1) = (X @ [L[i+1]; L[i]] @ Y) \in A \text{ List})$