

## concat-decomp<sup>11,40</sup>

$\forall T:\text{Type}, ll:(T \text{ List List}), x:T.$

$(x \in \text{concat}(ll))$

$\iff (\exists ll_1, ll_2:T \text{ List List}$

$(\exists l_1, l_2:T \text{ List}$

$(\text{concat}(ll) = (\text{concat}(ll_1) @ (l_1 @ [x] @ l_2) @ \text{concat}(ll_2)) \in (T \text{ List})$

$\& ll = (ll_1 @ [(l_1 @ [x] @ l_2)] @ ll_2)))$