Detailed Balance

If
$$\pi(x)T(x \to x') = \pi(x')T(x' \to x)$$

Then
$$\pi(x') = \sum_{x} \pi(x) T(x \to x')$$

Proof
$$\sum_x \pi(x) T(x \to x') = \sum_x \pi(x') T(x' \to x)$$