$$a \leftarrow a$$
$$b \leftarrow b$$

$T_{pq}:$
$$a \leftarrow bq + aq + ap$$
$$b \leftarrow bp + aq$$

$T_{pq}:$
$$a \leftarrow (bp + aq)q + (bq + aq + ap)q + (bq + aq + ap)p$$
$$= \underline{bpq} + \underline{aq^2} + \underline{bq^2} + \underline{aq^2} + \underline{apq} + \underline{bqp} + \underline{aqp} + \underline{ap^2}$$
$$= b(q^2 + 2qp) + a\left(\underline{q^2} + q^2 + \underline{pq + qp + p^2}\right)$$
$$= b(q^2 + 2qp) + a(q^2 + 2qp) + a(q^2 + p^2)$$

$$b \leftarrow (bp + aq)p + (bq + aq + ap)q$$
$$= \underline{bp^2} + aqp + \underline{bq^2} + aq^2 + apq$$
$$= b(q^2 + p^2) + a(q^2 + 2qp)$$

$$\therefore \ T_{pq}^{2} = T_{p'q'} \quad \text{WHERE} \quad p' = q^2 + p^2$$
$$q' = q^2 + 2qp$$