- **Input:** Two m-tuples of inhomogeneous multivariate polynomials of degree 2

$$f = (f^{(1)}, \ldots, f^{(m)}), \qquad p = (p^{(1)}, \ldots, p^{(m)}) \in \mathbb{F}_q[x_1, \ldots, x_n]^m.$$

- **Question:** Find – if any – $S \in \mathrm{GL}_n(\mathbb{F}_q)$ and $T \in \mathrm{GL}_m(\mathbb{F}_q)$ such that $p = T \circ f \circ S$

1. The decision version of this problem is easy? Because we have